UNION OF SOUTH AFRICA

ANNUAL REPORT

OF THE

Department of Public Health

Year ended 30th June, 1946

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DEPARTMENT OF PUBLIC HEALTH

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DEPARTMENT OF PUBLIC HEALTH.

Report for the Year ended 30th June, 1946.

The Honourable the Minister of Health.

Sir,

I have the honour to submit, for your information, the following report on the work of the Department of Health for the year ended 30th June, 1946.

I.—INTRODUCTORY.

This report, although not presented by him, covers a period during the whole of which Dr. Peter Allan was Secretary for Public Health, for he did not retire from this office until July 1, 1946.

It is fitting that some account should be given in the forefront of this report, to Dr. Allan's contribution to health services in the Union, for he is the last of that small band of medical men who more than a quarter of a century ago laid the foundations of the work of this Department. Dr. Allan's career commenced within a year of the establishment of the new central department of State brought into being by the Public Health Act of 1919. He had been a brilliant pupil of Sir Robert Philip, pioneer and for fifty years the leader in rational methods of tuberculosis control, and was brought to this country in 1920 in order to do for it what Philip was doing for Great Britain. Dr. Allan's first task was a Union-wide tuberculosis survey, which he undertook single-handed. This report was published as a Government blue-book. In it he clearly described the root causes of tuberculosis in this country; and the subsequent history of tuberculosis in our midst has proved the accuracy of his analysis. In 1923 he opened the first hospital for tuberculosis in the Union—the Nelspoort Sanatorium—and there laboured for more than a decade.

For part of this period, however, he was seconded to serve as field research officer to the Tuberculosis Research Committee, to whose work he made a valuable contribution and added to his own now unrivalled knowledge of tuberculosis in every part of the Union. In 1934 he was transferred to purely administrative work, and in 1940 became Secretary for Public Health. He took over the headship of the Department amidst the innumerable difficultires created by the war—shortage of staff, shortage of supplies, and increased risks of epidemics. Dr Allan foresaw clearly that increasing industrialisation would increase public health problems and, in particular, would bring about a rapid rise in the incidence of tuberculosis. Thus the end of his career found him grappling with the same problem as had been his special interest at its beginning. He was now planning on the grand scale. A hundred beds at Nelspoort had become many thousands, distributed over several large hospitals in several parts of the Union which he had personally helped to establish, over new hospitals which were now being acquired from the military authorities, and over yet others adumbrated in blueprints which he had himself drawn up. One of his last administrative acts was to secure the appointment of a national tuberculosis officer and the creation of a special division of tuberculosis control.

But is is not only as an expert and an enthusiast in his chosen speciality that Dr. Allan has won a lasting place in the high regard of his colleagues and of a wide public with whom his duties brought him into contact. He will be remembered also as one of the kindest hearted of men who never overlooked the human element in any problem with which he had to deal. It is very satisfying to be able to report that Dr. Allan is continuing his services with the Department as regional tuberculosis officer for the Western Cape and medical superintendent of the large tuberculosis hospital to be established at Westlake.

An outstanding and pleasing feature of the year under review is the marked decline in the incidence of the formidable epidemic diseases which for several years past have caused anxiety. These are smallpox, of which there were 1,721 notified cases as against 3,317 in the preceeding year; typhus, with only 778 cases as against 2,909; and plague, with only 4 cases as against 39. The incidence of plague is the lowest since 1923, when there were only 2 cases. The reduction in the incidence of these three diseases is due in no small measure to the unceasing vigilance and activity of district surgeons, typhus and rodent inspectors and the Department's field staff generally.

On the other hand, enteric shows a marked increase, from 3,470 to 6,032, diphtheria also still exacts far too heavy a toll—2,738 notified cases, with 184 deaths—although this is an improvement on last year's figures of 3,046 cases, with 245 deaths.

Both enteric and diphtheria are preventable, by measures which to no small extent depend upon the initiative and co-operation of the people themselves, as well as upon health officials and public health authorities. Thus, with regard to enteric, householders should see that their water supplies and their milk supplies are free from all possibility of contamination. If there is any doubt, simple boiling—of either water or milk—is a sure safeguard. With regard to diphtheria, a full explanation of the value of immunisation is given in the main part of this report, as in fact has been done for several years past. The continued high incidence of diphtheria is therefore a reproach and a challenge to parents throughout the country who have not already done so to safeguard their children—*before they are a year old*—against this so deadly but so easily preventable disease.

The incidence of infantile paralysis has diminished from 1,380 cases last year to only 216 cases during the year under review.

Sample surveys indicate that possibly a quarter of the native population in most urban and many rural areas of the Union is infected with syphilis. This is an appallingly high incidence. Venereal infection, particularly syphilitic, is not simply an acute disease like measles or smallpox from which recovery is usually complete. If untreated or inadequately treated, as unfortunately is still the case with regard to the vast majority of infected persons, the infection persists for many years, undermining general health, lowering resistence to other diseases, and often itself causing ultimate complete physical breakdown in middle life. It is thus a disease which is wasteful of the nation's inadequate resources of manpower, to an extent which cannot be determined precisely, but I venture to estimate that each year from 5,000 to 10,000 adult males between the ages of 30 and 40 become physically incapable of contributing to natonal production owing to syphilis alone. The most important single contributory factor in the production of a high incidence of venereal disease among the Natives is the system of migratory labour.

The economic disadvantages of this system, by way of the wastage of manpower just described, should be borne in mind, as well as its social ill-effects of family life generally, when considering whether its economic advantages justify the perpetuation of the system.

The prevalence of tuberculosis is the most urgent public health problem in the Union today. A high price in human life and suffering is being paid for rapid industrial expansion at the time when both housing and nutrition for the working masses are inadequate. Overcrowding increases the rate and intensity of infection. Malnourished individuals provide the soil in which infection flourishes. There are no exact figures, but probably 20,000 persons are dying annually from tuberculosis, and the peak has not yet been reached.

Tuberculosis cannot be held in check only or chiefly by hospitals and clinics, necessary as these are. Improved nutrition and housing are the basic requirements. Mention may also be made of the needs for town and even regional planning in order that workers may live as near as possible to their work. Fatigue induced by long and arduous journeys to and from work is undoubtedly a factor aiding precipitation of active disease in those already badly housed and undernourished.

" The want of adequate housing accommodation in the larger centres of population in the Union reached its most acute stage in the last few years .... High building costs during and after the war period and the consequent rise in the value of existing properties, combined with a growing urban population, were primarily responsible for this state of affairs ". The passage just quoted is taken from the Union Year Books for 1921. A Government Committee of Enquiry in 1919 had estimated a requirement of some 10,000 new houses for Europeans and 10,000 for urban Natives. In 1920 the Central Housing Board was established.

History has repeated itself, even to the detail of the statutory establishment of a new housing authority—the National Housing and Planning Commission of 1944.

During the recent war the urban population of the Union increased rapidly, particularly as to Natives, in response to the demand of new industries. But practically no new housing was provided for this influx, which was thus inevitably absorbed into the already overcrowded slums and locations. Moreover, for this accommodation high rents or lodgers' fees—high in proportion to Native incomes—had to be paid. At the same time the cost of food was rising. Something had to happen to relieve the strain both on accommodation and on family incomes. It is now happening. Squatters' camps have sprung up, where up to the present, no rentals have been payable. Thus the squatters have more to spend on food. Hunger is less tolerable than life virtually in the open air ; and indeed, life in the open air is, for most days in the year in South Africa, more tolerable than life in an overcrowded, ill-ventilated slum dwelling. Although the squatters' camps are doubtless augmented by a small percentage who come direct from the rural areas— and who usually find work almost at once, owing to the continued expansion of industry—it must be recognised that the vast majority of the inhabitants of these camps were already residents and workers in urban areas before they emerged from their slum dwellings to establish their camps. From the public health view point it would be undesirable to force these people back into the slums there to accentuate the problems (for example, tuberculosis) which have their roots in overcrowding. The only immediately practicable measure is strictly to control—by the use, if necessary, of the techniques of military hygiene—the sanitation of the camps, pending the erection of permanent housing.

As is shown by the experience of agencies in the field, adequate nutrition is even more important for health than is good housing. For this reason, as suggested above, even the squatters' camps may not be an unmitigated evil if they help their inhabitants to tide over the present period of high food prices.

It is probable that malnutrition is an even more potent factor than overcrowding in the production of active tuberculosis. It is indisputable that it is a basic or an aggravating factor in many other forms of disease. The subsidisation both of food production and of food distribution to lower-income groups may well be regarded as the most important health service provided by the State. It is encouraging to note how greatly this service has expanded in recent years.

As a conclusion to this introduction to the report, special mention may be made of the Health Centre service. There have been criticisms, based mainly on misconceptions, of this the most recently established of the many services for which the Department is responsible. The Health Centre Service in its present stage is pioneer and experimental. It is not yet supplanting the older established services—the district surgeoncy system, the field control of disease vectors, the mental hospital services, the national tuberculosis scheme, laboratory services, etc.—which are all continuing and expanding. The Health Centre represents a fundamentally new approach to the need of the people for guidance in the art of healthy living as well as for cure of established ill-health. Those who wish to understand this new approach and to appreciate its potentialities for the improvement of human health, should read carefully the relevant section of this report. Two outstanding results achieved by these new methods may here be noted. Among a rural Native community, mainly illiterate and universally poor, in five years the general death rate was reduced from 38 to 15 per 1,000 ; and during a period when smallpox, typhus and typhoid were prevalent in areas completely encircling an area, receiving the full range of health centre services, the latter escaped entirely. Such results, and others which could be cited, justify confidence in the future of health centres as the very foundation of a national health service.

Although the matter does not fall strictly within the scope of the Department itself, no review of public health activities in the Union during 1945 would be complete without reference to the establishment of the National War Memorial Health Foundation. The principal objec- of the Foundation is to stimulate and assist the develop- ment of promotive health services. The Department welcomes the Foundation as a splendid new ally in the never-ending campaign for the health of the nation.

II.—VITAL STATISTICS.

The year 1946 saw the taking of the third decennial complete census of all races in the Union. Owing to the resultant great pressure of work the Office of Census and Statistics has not been able to supply Vital Statistics for 1945. These will be published as an addendum to this Report as soon as the Census Office is able to supply the necessary information.

Tables 1, 2, 3 and 4 have been reproduced from last year's Annual Report, and the following comments refer to the year 1944.

The European Birth Rate was 26·63 per 1,000 of the population and is the highest since 1923. The European Death Rate was 9·33 per 1,000 and is the lowest on record. The Infantile Mortality Rate of 42·53 per 1,000 live births and the maternal mortality rate of 2·20 (both for Europeans only) are also the lowest yet recorded for the Union.

There was a slight rise in the Death Rate for Tuberculosis : 34·17 per 100,000 of the European population as compared with 33·16 for 1943. The increase is entirely in the rates for males, except in the Cape Province where the rate for females has also increased.

There is a fall in the death rate for pneumonia and bronchitis to 84·78 per 100,000.

Increased death rates are again to be found in the case of diseases of the heart and circulatory system and cancer, which stand at 214·83 and 119·96 per 100,000 respectively.

TABLE 1.—UNION OF SOUTH AFRICA: SUMMARY OF VITAL STATISTICS OF EUROPEAN POPULATION, 1920–1944.

Calendar Year.	European Population (estimated).	Birth Rate per 1,000 of Population.	Death Rate per 1,000 of Population.		Diseases of Heart and Circulatory System.	Pneumonia and Bronchitis.	Cancer.	Death Rate per 100,000 of Population from Tuberculosis (all forms).§								Percentage of Total Deaths, the Cause of which was Medically Certified.	Infantile Mortality Rate (Deaths of Infants under One Year per 1,000 Live Births Registered).	Maternal Mortality Rate (Deaths of Mothers in connection with Pregnancy or Childbirth Per 1,000 Live Births Registered).	Survival Rate or Rate of Natural Increase (Excess of Births over Deaths per 1,000 of Population).
								Cape Province.		Transvaal.		Orange Free State.		Natal.		Total.			
			Actual or Crude.	Standardized.*				Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.				
1920.....	1,499,911	28·97	11·09	12·15	95·67†	113·87†	58·87†	¶	¶	¶	¶	¶	¶	¶	¶	45·93†	79·78	90·07	4·10†	17·88
1921.....	1,519,488‡	28·44	10·41	11·43	102·91	136·15	69·09	¶	¶	¶	¶	¶	¶	¶	¶	58·26	80·76	77·09	4·94	18·03
1922.....	1,556,241	27·52	9·48	10·41	97·99	127·24	70·88	¶	¶	¶	¶	¶	¶	¶	¶	47·74	82·96	72·91	5·21	18·04
1923.....	1,579,733	26·70	9·77	10·65	108·50	120·72	78·94	55·03	52·43	74·45	21·12	19·91	17·17	41·62	40·45	46·46	82·77	74·42	5·22	16·93
1924.....	1,610,774	26·29	9·62	10·44	123·92	123·79	76·36	67·04	82·82	84·54	23·41	14·71	22·25	50·93	36·38	51·59	84·74	73·73	4·75	16·67
1925.....	1,637,472	26·51	9·39	10·15	128·86	97·04	72·86	65·65	62·14	74·27	21·84	30·01	12·59	73·89	40·51	52·70	86·45	68·39	5·62	17·12
1926.....	1,676,660‡	26·16	9·59	10·28	127·21	113·44	71·18	58·97	57·36	95·54	24·41	24·89	16·22	49·23	39·85	53·41	87·76	64·82	4·56	16·57
1927.....	1,708,955	25·95	9·73	10·34	122·76	110·42	73·20	61·36	59·87	78·78	17·87	24·58	12·98	71·95	28·73	50·50	89·93	70·62	4·80	16·22
1928.....	1,738,937	25·77	10·15	10·69	133·53	127·52	77·72	60·72	56·51	85·08	20·72	31·76	15·74	54·99	25·55	50·95	89·93	70·49	4·98	15·62
1929.....	1,767,719	26·15	9·51	9·98	127·11	104·04	77·44	57·98	51·63	72·48	18·08	22·16	17·47	44·58	22·56	45·37	90·19	64·22	5·26	16·64
1930.....	1,797,900	26·44	9·69	10·08	132·33	112·87	82·62	62·20	50·58	73·84	18·96	23·47	6·87	51·74	31·51	46·78	91·15	66·84	5·26	16·75
1931.....	1,829,300	25·38	9·37	9·56	131·53	103·75	85·55	55·79	55·75	64·26	15·05	24·81	11·92	54·26	26·35	44·22	90·46	63·07	4·70	16·01
1932.....	1,859,400	24·17	9·97	9·98	137·52	113·75	89·06	51·02	54·55	59·19	16·40	20·02	15·83	58·63	24·66	42·33	90·84	68·57	5·31	14·20
1933.....	1,890,300	23·55	9·35	9·27	142·52	100·30	95·33	57·48	54·40	52·21	14·58	22·86	6·90	46·86	19·63	40·68	91·45	61·01	4·81	14·20
1934.....	1,914,700	23·44	9·68	9·55	156·21	94·53	92·39	50·85	50·23	52·30	16·50	19·03	12·77	50·31	26·97	39·54	91·91	60·79	5·99	13·76
1935.....	1,973,700	24·18	10·45	10·28	169·58	131·98	95·76	50·85	56·52	49·18	16·83	14·63	26·16	43·39	28·72	40·43	92·55	62·81	4·73	13·72
1936.....	2,008,700	24·21	9·57	9·50	154·38	106·19	97·28	46·61	44·72	45·28	12·57	18·65	9·08	45·03	15·69	34·40	92·88	59·06	5·10	14·64
1937.....	2,043,700	24·90	10·08	9·66	172·97	113·62	106·57	47·19	50·17	41·72	16·39	13·74	15·14	44·56	27·78	36·40	93·17	56·57	4·38	14·81
1938.....	2,081,400	25·01	9·48	8·93	153·55	102·53	103·44	54·90	51·75	42·42	13·54	18·65	11·10	60·54	28·28	38·34	94·20	51·69	3·69	15·53
1939.....	2,116,500	25·29	9·40	8·75	170·42	90·05	104·75	54·44	43·81	43·05	14·32	21·59	10·09	52·79	17·87	36·19	94·32	49·48	3·61	15·88
1940.....	2,152,700	25·29	9·42	8·65	190·18	89·93	102·80	52·03	50·68	37·74	11·23	12·76	12·11	57·29	18·55	35·12	94·75	50·02	3·37	15·87
1941.....	2,188,200	24·94	9·47	‖	197·61	86·14	109·40	54·83	43·83	38·11	11·90	10·00	11·11	48·62	25·45	34·26	94·95	50·93	2·49	15·47
1942.....	2,230,000	25·18	9·35	‖	199·69	81·97	109·33	59·71	44·95	38·20	14·95	15·00	7·07	54·05	24·11	36·19	94·83	47·52	2·83	15·83
1943.....	2,265,000	25·94	9·53	‖	211·92	92·23	109·98	51·67	45·11	36·52	10·25	12·00	13·13	46·90	26·32	33·16	95·25	45·60	2·85	16·41
1944.....	2,300,000	26·63	9·33	‖	214·83	84·78	111·96	55·32	51·90	31·87	12·17	17·00	5·05	55·65	12·07	34·17	95·03	42·53	2·20	17·30

* The rate which would have obtained had the age and sex distribution of the population been the same as that of England and Wales at the 1901 Census, the standard usually taken for international comparisons.

† Medically certified deaths only. Rates for subsequent years calculated on the total deaths registered.

‡ Actual (per census).

§ Includes miners' phthisis combined with pulmonary tuberculosis.

‖ Not yet available.

¶ Not available.

TABLE 2.—ESTIMATED POPULATION, 1944, BY RACE.

Province.	European.			Native.			Asiatic.			Coloured.		
	M.	F.	P.	M.	F.	P.	M.	F.	P.	M.	F.	P.
Cape.....	423,000	422,000	845,000	998,900	1,266,500	2,265,400	7,600	4,700	12,300	396,600	393,000	789,600
Natal.....	115,000	116,000	231,000	846,500	931,800	1,778,300	105,000	100,400	206,400	11,000	10,800	21,800
Transvaal.....	524,000	501,000	1,025,000	1,672,200	1,289,700	2,961,900	17,800	12,700	30,500	30,100	29,600	59,700
Orange Free State.....	100,000	99,000	199,000	301,700	323,200	624,900	—	—	—	9,200	8,500	17,700
UNION....	1,162,000	1,138,000	2,300,000	3,819,300	3,811,200	7,630,500	131,400	117,800	249,200	446,900	441,900	888,800

TABLE 3.—COMPARISON OF BIRTH, DEATH AND NATURAL INCREASE RATES AMONG EUROPEANS IN THE UNION WITH OTHER COUNTRIES. AVERAGE RATES FOR THREE-YEARLY PERIODS (BASED ON LATEST AVAILABLE INFORMATION).

Countries.	Birth Rate.	Death Rate.	Natural Increase.
Union of South Africa..	25·9	9·4	16·5
Holland.....	20·7	9·0	11·7
Canada.....	22·4	9·8	12·6
Portugal.....	26·1	15·6	10·5
New Zealand.....	21·9	9·9	12·0
Italy.....	23·5	13·7	9·8
Australia.....	19·7	10·3	9·4
Germany.....	20·0	12·3	7·7
United States of America	23·4	10·8	12·6
England and Wales....	14·9	12·7	2·2
France.....	14·7	15·7	*

* Decrease.

TABLE 4.—INFANTILE MORTALITY RATES: EUROPEANS IN THE UNION COMPARED WITH OTHER COUNTRIES. AVERAGE RATES FOR THREE-YEARLY PERIODS (BASED ON LATEST AVAILABLE INFORMATION).

New Zealand.....	30
Holland.....	41
Australia.....	39
Union of South Africa.....	45
England and Wales.....	54
Canada.....	57
Germany.....	64
France.....	78
Belgium.....	84
Italy.....	109
Lithuania.....	118
Portugal.....	128

III.—ADMINISTRATIVE.

1. *Staff.*—The Staff Chart (Table 5) included in this section shows the departmental organization.

During the year under review Dr. Peter Allan retired after a term of office of 6 years as Secretary for Public Health,. A note on his retirement appears in the introductory section of this Report.

Dr. Allan's place has been taken by Dr. G. W. Gale under the new designation of Secretary for Health.

Loss of professional and clerical staff continued throughout the year, and again it is desired to emphasise the great difficulty experienced in obtaining suitable replacements and recruits for the greatly expanding needs of the Department. Many posts remained vacant at the end of the year.

With deep regret are recorded the deaths of the following members of the Department's staff during the year under review:—

Lieut. W. A. Aird, Health Inspector—died on Active Service.

Miss Reimerschmidt, Physicist

Mr. J. C. Bergh, Clerk of Works—Valkenberg.

Miss Reimerschmidt was a very able worker in a highly specialised field who was brought to this country for the express purpose of making scientific measurements of solar radiation. This task occupied her for several years and she was still engaged upon it at the time of her death. Although unfinished, her work will remain as the solid foundation upon which all subsequent research will be based.

2. DISTRICT SURGEONS.

Table 6 shows the disposition of whole-time and part-time District Surgeons in the Union. Their usual high standard of work was fully maintained during the year under review, despite difficulties—such as increased calls on their services, scarcity of new motor-cars, bad roads, etc. Now that the immediate post-war period is over, some relief has been experienced by many an over-worked District Surgeon. For example, there has been an increase in the number of District Surgeon posts. On 30th June, 1946, there was a total of 395 such posts as compared with 385 at the end of the previous year—an increase of 10. This includes the creation of three whole-time posts—one at Bronkhorstspruit and two at Louis Trichardt. The creation of more whole-time posts in various parts of the country is contemplated. All war-time temporary district surgeon posts have now been filled by permanent incumbents. Another help has been the establishment of two Relief Posts for District Surgeons, with headquarters at Pretoria. However, so far, only one of these posts has been filled.

With the return to more normal and settled times, the Department is making the necessary arrangements for a refresher course for district surgeons during the coming year. Details will be announced in due course.

The whole question of drug allowances to district surgeons has occupied the attention of the Department, and it is hoped that the position will be improved in this respect in the near future. In many instances the salaries paid to part-time district surgeons have been substantially increased.

The interest and conscientinousness displayed by district surgeons in the campaign against venereal disease has continued to be a praiseworthy feature of their work. The demands on their time and skill in this connection continue to increase. There is good evidence to prove that all treatment centres, in both rural and urban areas, have been well attended and continue to fulfil a most useful function and to play a most important role in combating this disease.

TABLE 5.

CHART OF DEPARTMENT OF PUBLIC HEALTH, AS AT 30TH JUNE, 1946.

Minister of Public Health (DR. THE HON. H. GLUCKMAN).

Minister (Chairman)
Secretary and Chief Health Officer (Deputy Chairman)
Director of Veterinary Services
Mrs. J. E. Conradie
Senator W. J. O'Brien and Mr. R. H. Buchanan
Drs. K. Bremer, M.P., A. J. Orenstein, C. P. Theron and E. H. Cluver
} *Council of Public Health.*

Secretary and Chief Health Officer (Dr. Peter Allan). *Under-Secretary* (N. A. G. Reeler). *Departmental Chief Clerk* (D. J. M. Marais).

2 *Deputy Chief Health Officers* (Dr. A. J. van der Spuy, Dr. B. M. Clark).

1 Accountant.
3 Assistant Accountants.

1 Chief Clerk, Grade I.
3 Chief Clerks, Grade II.
1 Controller of Stores.

14 Principal Clerks.
27 Senior Clerks.

4,287 Clerks, Typists, Nursing and Domestic Staff, etc.

Detached Officers.	Inspection and Special Staff.	Maternity and Child Welfare.	Pathological and Biological Control Laboratories.	Port Health Officers.	Health Centres Service.	Leprosy.	Venereal Diseases.
Cape Town :— Deputy Chief Health Officer (Dr. H. S. Gear). Senior Assistant Health Officer (Dr. J. J. du Pré le Roux). Umtata :— Assistant Health Officer, Cape Native Territories (Dr. R. J. Smit). Durban :— Deputy Chief Health Officer (Dr. F. W. P. Cluver). Assistant Health Officer (Dr. A. L. Ferguson). Johannesburg :— Assistant Health Officer (Dr. P. C. Eagle). S.A. Railways and Harbours :— Deputy Chief Health Officer (Dr. C. G. Booker).	Assistant Health Officer (vacant). Assistant Health Officer (Venereal Diseases) (Dr. C. A. M. Murray) Medical Inspector (Dr. H. F. Schiller). Dental Health Officer (Dr. T. Ockerse). Nutrition Officer (Dr. J. M. Latsky). Ecologist and Chief Rodent Officer (Mr. D. H. S. Davis). Twenty-three Inspectors (plague and typhus).	Medical Inspector (Dr. K. D. Winterton). 4 Supervisors of Nursing and Maternity Services. 2 Inspectresses of Maternity Homes.	Cape Town and Vaccine Institute, Rosebank (Drs. R. Turner, A. H. Shapiro and E. N. Keen.) Cape Town Biological Control Laboratory (vacant). Durban (Dr. I. Gordon.) S.A. Institute for Medical Research (Johannesburg, Port Elizabeth and Bloemfontein).	Cape Town (Dr. J. M. Bosman). Durban (Dr. J. McKay). Port Elizabeth (vacant). East London (Dr. R. V. S. Stevenson). Simonstown (Dr. A. B. Bull). Mossel Bay (Dr. J. A. du P. Krick). Port St. Johns (vacant). Saldanha Bay (Dr. J. Rauch).	*Health Centres Advisory Committee.* Under Secretary, Mr. N. A. G. Reeler (Chairman), Dr. C. J. Albertyn, Dr. G. W. Gale. *Training Scheme for Health Personnel* (at Springfield, Durban and Polela Health Centre), Medical Officer-in Charge, Dr. S. L. Kark.	*Leprosy Advisory Committee.* Secretary and Chief Health Officer, Dr. P. Allan (Chairman), Professor W. H. Craib, Drs. A. Pijper, A. J. Orenstein, W. F. Rhodes, E. H. Cluver and K. Bremer, M.P. *Institutions.* Pretoria (Drs. A. R. Davison, H. J. F. Wood). Emjanyana (Dr. P. A. Thornton). Mkambati (J. P. J. Kolver and Dr. F. S. Drewe). Amatikulu (E. G. Scotney and Dr. E. L. Riemer). Bochem (J. H. Franz).	*Institution.* Rietfontein, Johannesburg (Drs. J. H. Loots, J. Meyer and M. Kuper). Klngwilliamstown. Bochem*. Elim*. Jane Furse Memorial*. Several smaller hospitals.

Malaria.	Tuberculosis.	Food and Drugs Adulteration, Habit-forming Drugs.	National Nutrition Council.	Mental Hospitals.	National Housing and Planning Commission.
Senior Malaria Officer (Dr. D. H. S. Annecke). 4 Medical Inspectors (vacant). 18 Health Officers (6 vacant). 4 European Female Health Visitors (2 vacant). Natal :— 1 Medical Inspector (vacant). 9 Health Inspectors (2 vacant).	Tuberculosis Officer (Dr. B. A. Dormer). *Institutions.* Nelspoort Sanatorium (Drs. H. R. Ackermann, P. Scher, C. A. Sleggs). Rietfontein Hospital (Drs. J. H. Loots, J. Meyer). King George V Hospital (Drs. B. A. Dormer, F. J. Wiles and I. Woods). In addition to these Institutions under the direct control of the Department there is a number of other hospitals where accommodation is available.	Pharmacist (Mr. N. G. Greenwood). 5 Inspectors. Chemical work done in chemical laboratories of Department of Agriculture at Cape Town and Johannesburg.	*Members.* Dr. the Hon. H. Gluckman. Dr. Peter Allan. Dr. C. H. Neveling Mr. F. L. A. Buchanan. Mr. G. Mears. Mr. G. A. C. Kuschke. Dr. H. S. Gear. Dr. F. J. van Biljon. Mr. J. I. Raats. Dr. J. M. Latsky. Prof. H. D. Leppan. Dr. B. A. Dormer. Dr. F. J. de Villiers. Dr. E. H. Cluver. Prof. H. S. Frankel. Prof. J. L. Gray. Mrs. B. Solomon, M.P. Mr. H. A. J. Wium. Mr. A. L. Barrett. Prof. J. F. Brock. Dr. F. W. Fox. Mr. E. P. Pearce. Secretary : Mr. C. Marr. Nutrition Officer : Dr. J. M. Latsky. Principal Professional Officer (Nutrition) (vacant). Professional Officer (Economics). Professional Officer (Dietetics) (vacant). 6 Assistant Professional Officers (Dietetics) (4 vacant).	Commissioner for Mental Hygiene (Dr. W. Russell). Deputy Commissioner for Mental Hygiene (Dr. P. de Vos). 18 Physician Superintendents. 2 Psychologists. 6 Chemists and Druggists. *Institutions.* Alexandria : Feebleminded. Bloemfontein : Mental. Fort Beaufort : Mental. Fort Napier : Feebleminded. Grahamstown : Mental. Pietermaritzburg (Town Hill) : Mental. Port Alfred : Mental. Pretoria : Mental. Queenstown : Mental. Valkenberg : Mental. Witrand : Feebleminded. Krugersdorp : Mental.	*Members.* Major W. Brinton (Chairman). Major J. C. Collings (Director of Housing and Deputy Chairman). Major E. L. Ellenberger. Major N. L. Hanson. Capt. H. S. Kemp. Mr. M. G. Nicolson. Mr. G. O. Owen. Mr. H. C. Roberts. Mr. A. Schander. Dr. T. Shadwick Higgins. Mrs. L. Reitz. Secretary : Mr. A. K. MacConnell. *Building Action Committee.* Mr. Ivan L. Walker (Chairman). Mr. M. G. Nicolson. Mr. N. L. Hanson. Mr. J. C. Collings and the Executive Committee of the National Housing and Planning Commission, viz. :— Dr. Peter Allan (Secretary for Public Health). Mr. F. Nesor (Chairman, Union Tender & Supplies Board). Mr. E. Hess (Department of Lands).

* Receives grant-in-aid.

TABLE 6.—DISTRICT SURGEONCIES AS AT 30TH JUNE, 1946.

Province.	Whole-time.	Part-time.			Total.
		Whole-time, but Jointly with Local Authority or Public Body.	On Inclusive Annual Salary.	On Annual Salary with certain Supplementary Fees and Allowances.	
Cape	8	2	—	172	182
Natal	3	—	—	46	49
Transvaal	21	—	1	77	99
Orange Free State	2	—	—	61	63
Relief Staff	2	—	—	—	2
UNION	36	2	1	356	395

The thirty-six whole-time posts are those at Cape Town (2 ; Durban (3) ; East London ; Port Elizabeth ; Pretoria (4 ; Bronkhorstspruit (2) ; Johannesburg (4) ; Pietersburg (2) ; Bloemfontein (2) ; Wynberg ; Knysna ; Heidelberg (Tvl.) ; Nigel ; Nylstroom (2) ; Rustenburg (2) ; Delagersdrift (District Middelburg, Tvl.) ; Saldanha Bay ; Kimberley ; Relief staff (2) ; and Louis Trichardt (2).

IV.—WORK OF THE DEPARTMENT.

1.—INSPECTIONS, INVESTIGATIONS AND FIELD WORK.

Although seriously handicapped through lack of adequate staff, the Department is always prepared to send officers into the field to give advice to local authorities regarding the control and suppression of serious outbreaks of infectious diseases and other important matters.

Another important function of the Department, namely, the routine inspection of urban local authority areas—a procedure which largely lapsed during the War—has once more been put in hand.

Table 7 shews the number and distribution, according to Provinces, of the various types of Local Authority Areas at present existing in the Union. It will be noted that there are 12 different types comprising a total of 752 Local Authority Areas, which cover the whole of the Union. Actually, there is a thirteenth type this being the Admiralty Reserve which has jurisdiction over the whole of the Union coast-line.

2. PUBLICATIONS.

DR. H. S. GEAR, Deputy Chief Health Officer, Cape Town :—

"A Note on the Use of D.D.T. in Medical and Health Problems", published in *South African Medical Journal*, 25th August, 1945.

"The Health of the Middle East Force, 1942–43", published in *Journal of Royal Army Medical Corps*, Vol. LXXXV, July, 1945. (Co-author A. E. Richmond).

DR. B. A. DORMER, Medical Superintendent, King George V Jubilee Hospital for Tuberculosis, Durban :—

"Bronchography in Pulmonary Tuberculosis" (with Drs. Friedlander and Wiles), published in the *American Review of Tuberculosis*.

"V. Artificial Pneumothorax" (July 1945).

"VI. Thorocoplasty" (August, 1945).

"Tuberculosis in the Bantu" (with Dr. Wiles), published in *South African Medical Journal*, May, 1946.

"Pulmonary Amœbiasis", published in *Proceedings of the Transvaal Mine Medical Officers' Association*, November, 1945.

DR. J. J. DU PRÉ LE ROUX, Senior Assistant Health Officer, Cape Town :—

"An Enquiry into the Causes and Effects of *Variolae Vaccinae*" (with Dr. W. F. Rhodes), published in *South African Medical Journal*, 27th October, 1945.

DR. A. R. DAVISON, Medical Superintendent, Pretoria Leper Institution :—

"Notes on a Case of Lymphadenoma Complicating Leprosy", published in *International Journal of Leprosy*, Vol. 12.

"Decolorizing of *Mycobacterium Leprae*", published in *International Journal of Leprosy*, Vol 11.

DR. J. M. LATSKY, Nutrition Officer, Pretoria :—

"Skeletal Maturation, Somatometric Indices and Blood Haemoglobin Level in the Detection of Human Malnutrition: A Statistical Analysis" (with A.R. Richardson and J. F. Brock), published in *Transactions of the Royal Society of South Africa*, Vol. XXXI, Part 2, June, 1946.

"Blood Studies in Children in Relation to their Nutritional Needs", published in *Transactions of the Royal Society of South Africa*, Vol. XXXII, Part 3, June, 1946.

DR. G. MACHANIK, Medical Inspector, Pretoria :—

"Plague", published in *Physical Education*, November, 1945.

DR. W. H. LE RICHE, Medical Officer-in-Charge, Knysna Health Centre :—

"Notes on the Epidemiology of Smallpox in a Native Reserve", published in *Clinical Proceedings*, July, 1945. pp. 276–9.

"Smallpox Control in the Swartkop Native Location", *ibid.* pp. 280–283.

"Changing Standards of Growth", published in the *South African Medical Journal*, Vol 19, pp. 253 and 254.

"Fortified Maize and Kaffircorn Mixtures" (with Dr. F. J. H. le Riche), published in *South African Medical Journal*, Vol. 20, pp. 59–62.

"A Note on the Sulphonamide Drugs as Inhibitors of Intestinal Vitamin Synthesis", published in *South African Medical Journal*, Vol. 20, p. 98.

"Should Babies be Consulted about their Diets?", published in *South African Medical Journal*, Vol. 20, pp. 150 and 151.

TABLE 7.—LOCAL AUTHORITIES UNDER PUBLIC HEALTH ACT (1919) AS AT 30TH JUNE, 1946.

Province.	City and Town Council.	Village Management Boards.	Local Boards.	Village Councils.	Health Committees.	Town Boards.	Magistrates.	Divisional Councils.	Board of Health.	Mining Commissioners.	Rural Local Authority.	Local Health Commission (Natal) and Peri-Urban Areas Health Board (Transvaal).	Committee of Management.	Total.
Cape	147	87	24	—	—	—	29	95	1	1	1*	—	—	385
Natal	11	—	—	—	31	26	46	—	—	—	—	1	—	115
Orange Free State	64	5	—	—	—	—	38	—	—	1	—	—	1	109
Transvaal	39	—	—	31	33	—	37	—	—	2	—	1	—	143
TOTAL	261	92	24	31	64	26	150	95	1	4	1	2	1	752

* Vaal-Hartz Rural Local Authority with area of jurisdiction extending into the Transvaal.

Dr. I. Gordon, Senior Government Pathologist, Cape Town :—

"Medical Jurisprudence Text-book for Medical Practitioners and Lawyers" (with Drs. W. F. Rhodes and R. Turner), published by the Post-Graduate Press & Stewart Printing Co., (Pty.), Ltd., Cape Town. October, 1945, 2nd Edit.

Dr. A. H. Shapiro, Assistant Pathologist, Cape Town :—

"Physiological Histology" (co-author Dr. H. Zwarenstein), published by Maskew Miller, Ltd., Cape Town, June, 1946.

Dr. J. Meyer, Medical Officer, Rietfontein Hospital :—

"Tubercle Endotoxoid in Pulmonary Tuberculosis", published in *Clinical Proceedings*, Vol. 4, No. 9, p. 499. November, 1945.

D. H. S. Davis, Ecologist, Johannesburg.

"Susceptibility of South African Wild Rodents to the Vole Strain of Acid-fast Bacillus and to other Acid-fast Bacilli" (with Drs. E. Grasset and J. F. Murray, S.A.I.M.R.), published in *American Review of Tuberculosis*, 53, 427–39, May, 1946.

K. Hollow, Pharmacologist, Biological Laboratory, Cape Town.

"The Treatment of Spider-bite in South Africa by Specific Antisera" (co-author Dr. M. H. Finlayson) published in *South African Medical Journal*, November, 1945.

3. Health Education and Propaganda.

As in previous years, the South Africa Red Cross Society has carried out important activities in the field of health education and propaganda and the annual subsidy of £5,000 was paid to that body for this purpose.

Material for propaganda purposes (pamphlets, posters, filmlets, films, etc.) is produced by the National Health Education Committee of the South African Red Cross Society after having been submitted to this Department for scrutiny and approval. Distribution of this material to the public is a function delegated by the National Committee to the various provincial branches of the South African Red Cross Society.

The need for more health propaganda particularly among the Non-Europeans continues to be an urgent problem.

A new feature of the health education drive is the creation of mobile field film units by the South African Red Cross Society. Each of these mobile units consists of a motor van fully equipped for the shewing of films anywhere, in charge of an European operator and lecturer. Every Branch of the Society has at least one such mobile van. In its Annual Report for the year ended 30th June, 1946, the National Committee for Health Education of the South African Red Cross Society indicates that "the distribution of health propaganda films has been very considerably increased, and the films from the Society's library have been shewn throughout the Union through the medium of Branches and their mobile vans; through Parker Touring Vans and Non-European Cinema Circuits, whereby filmlets are shewn in the main towns and districts over the Union; and through organisations which borrow films for health lectures."

The following table, showing the amount of health propaganda carried out by the South African Red Cross Society during the year under review is of much interest.

Medium of Propaganda.	European.	Non-European.	Total.
Literature and pamphlets distributed	327,780	234,284	562,064
Posters and charts distributed	54,081	10,981	65,062
Films produced by S.A. Red Cross Society		Talkies	4
	"Save your Eyes" "Two Families" "Bilharzia" "From Shadow to Sun"		Afrikaans and English.

Besides the South African Red Cross Society, the Schools, under the aegis of the various Provincial Education Departments, continued the teaching of hygiene and allied subjects, while the Library of the Film Bureau of the Union Department of Education was, as usual, at the disposal of all interested Government Departments and State- subsidised bodies and organisations.

4. Laboratories.

Routine and special laboratory investigations and diagnostic work on various specimens of human and other origin continued to be carried out at the Government Pathological Laboratories at Cape Town and Durban, at the South African Institute for Medical Research Laboratories at Johannesburg, Port Elizabeth and Bloemfontein

Table 8 —Pathological Laboratories: Analyses and Examinations, Year ended 30th June, 1946.

Particulars.	Government Laboratories.		South African Institute for Medical Research.			East London. Hospital Board.
	Cape Town.	Durban.	Johannesburg.	Port Elizabeth Branch.	Bloemfontein Branch.	East London and Border Pathological Laboratory.
Specimens examined for—						
(a) Government Departments :—						
Agriculture	—	1	—	(a)	(a)	—
Customs and Excise	25	—	—	—	—	—
Defence	2,292	839	9,991	3,920	3,153	399
Education	—	—	—	—	—	—
Finance	271	—	—	—	—	—
Public Health (including Leper Institutions and Mental Hospitals)	14,631	11,889	90,352	11,224	6,958	24,815
Interior	—	1,451	382	—	199	2
Justice (including Prisons)	155	685	3,915	309	315	18
Mines (including Miners' Phthisis)	—	—	23,159	—	—	—
Native Affairs	—	2	—	—	—	—
Post and Telegraphs	—	—	—	—	—	—
Public Works	1	—	(a)	(a)	(a)	—
S.A. Railways and Harbours	176	1,365	(a)	(a)	(a)	37
Others	29	—	439	226	79	—
(b) General Hospitals (Provincial)	3,715	21,948	109,295	18,480	7,043	—
(c) Local Authorities	57,316	10,675	77,140	25,875	3,221	—
(d) Medical Practitioners and members of the public.	16,516	28,280	32,344	2,847	—	—
(e) Other Governments or Administrations	217	5,279	636	—	—	—
(f) Others	—	3	36,078	—	—	—
Totals	95,344	82,417	383,731	62,881	20,968	25,271
Manufactures and Issues—						
Autogenous Vaccines	50 (c)	1	1,015 (c)	100 (c)	61 (c)	—
Bacterial Vaccines c.c.	—	—	1,657,423	(b)	(b)	—
Tuberculin Dilutions c.c.	75	—	10,224	101	—	—
Sera (various), Bacterial Filtrates c.c.	1,000	—	403,647	(b)	(b)	—
Sera (amps.) c.c.	—	—	124,111	—	—	—
Anti-rabic Vaccine c.c.	14,640	—	—	—	—	—
Chaulmoogra Oil Preparations	—	—	—	—	—	—
Smallpox Vaccine (prepared at Vaccine Institute, Rosebank)—						
Calf Lymph (issued) Tubes	7,394,971	—	497,633	1,050	7,720	—
Chick Membrane Lymph (on hand) Tubes	—	—	—	—	—	—
Others (oral) Doses	—	—	23,266	—	—	—
Milk Cultures Bottles	—	—	340	(b)	(b)	—
Attendance at Courts of Law by Members of Staff	300	20	—	—	—	—
Total days absences, entailed by such attendances	80	20	(a)	—	—	—

(a) Included under "others".
(b) Included in Johannesburg figures.
(c) c.c.
(d) Manufactured 8,717,800 tubes.

and at the East London and Border Pathological Laboratory, East London, on behalf of the Government. The following tables (Tables 8, 9 and 10) give some idea—so far as figures can give—of the volume of pathological work done by the above six laboratories. It should be borne in mind that the figures given below are exclusive of the pathological laboratory work performed by numbers of provincial and private hospitals, medical practitioners and private pathologists.

TABLE 9.—PATHOLOGICAL LABORATORIES: NUMBER OF EXAMINATIONS PERFORMED, 1945–46.

Laboratory.	Work Done on Behalf of Govt. Departments.	Work Done on Behalf of Others.	Total Specimens.
Johannesburg...	128,338	255,393	383,731
Cape Town.....	17,580	77,764	95,344
Durban.....	16,235	66,182	82,417
Port Elizabeth..	15,779	47,102	62,881
East London....	25,271	—	25,271
Bloemfontein....	10,704	10,264	20,968
TOTALS.....	213,907	456,705	670,612

TABLE 10.—PATHOLOGICAL LABORATORIES, 1945–46: NATURE OF EXAMINATIONS PERFORMED.

Laboratory.	Particular Diseases.	General Bacteriological.	Chemical.	Parasitological.	Pathological.	Medico-Legal.
Johannesburg..	268,474	21,792	28,453	8,487	36,719	1,806
Cape Town....	92,536	1,916	131	204	278	280
Durban.....	75,192	4,233	21	2,574	61	335
Port Elizabeth.	49,452	3,469	3,879	797	4,989	295
East London..	24,815	249	—	207	—	—
Bloemfontein...	19,675	172	358	283	480	—
TOTALS.....	548,144	31,831	32,842	12,552	42,527	2,716

Smallpox Vaccine.

All anti-smallpox vaccine or calf lymph used in the Union for the control of smallpox is manufactured at the Government Vaccine Institute, Rosebank, Cape Town. Moreover, a considerable quantity is exported to extra Union territories in Africa. The amount of calf lymph vaccine prepared and issued, together with the value of this lymph is shewn in the subjoined tables (Tables 11, 12 and 13):—

TABLE 11.—GOVERNMENT VACCINE INSTITUTE, ROSEBANK, CAPE.

Work carried out during the period 1st July, 1945 to 30th June, 1946.

No. of Calves Vaccinated.....	313
No. of Calves successful.....	310
No. of Calves Lymph rejected.....	3
Amount of Lymph obtained from 310 Calves.	217,945 c.c.
Average Quantity per successful Calf.....	703 c.c
Average Number of Tubes per successful Calf	28,120
Average Value per successful Calf @ 2d. per Tube.....	£234 6 8
Total Number of Tubes manufactured during Year ending 30th June, 1946 (Calf Lymph)	8,717,800
Number of Tubes issued during the above Period.....	7,394,971
Value of Lymph manufactured @ 2d. per Tube (Calf Lymph).....	£72,648 6 8
Value of Lymph issued free @ 2d. per Tube..	£43,375 4 8
Number of Tubes (approx.) on hand at the end of June, 1946 (Calf Lymph).....	2,932,000
Revenue Received by Sales outside the Union	£11,934 5 6

TABLE 12.—LYMPH ISSUED FREE IN THE UNION FROM 1ST JULY, 1945 TO 30TH JUNE, 1946.

Month.	Cape.	Transvaal.	Natal.	O.F.S.
1945.				
July.....	422,806	828,769	72,859	81,991
August.....	360,356	345,463	138,322	17,901
September.....	352,564	112,441	90,948	11,102
October.....	113,754	120,442	20,828	7,117
November.....	123,555	101,399	18,953	4,287
December.....	97,405	116,093	828	4,632
1946.				
January.....	82,252	114,194	21,898	9,311
February.....	38,153	99,935	6,622	4,409
March.....	128,751	107,922	21,028	7,330
April.....	57,903	152,829	43,828	17,942
May.....	145,394	159,275	19,153	29,127
June.....	163,391	188,330	14,838	6,398
TOTAL.....	2,086,284	2,447,092	470,105	201,547

TABLE 13.—SALES OUTSIDE THE UNION FROM 1ST JULY, 1945 TO 30TH JUNE, 1946.

Month.	Single Dose Tubes @ 2d. Each.	50 Dose Amps @ 7s. 6d. Each.	100 Dose Amps @ 14s. Each.	250 Dose Amps @ 32s. Each.	C.C. @ £100 per 500 C.C.
1945—					
July.....	43,826	10	4	40	—
August.....	91,136	15	6	60	—
September.....	81,786	10	4	96	—
October.....	84,531	22	4	—	—
November.....	66,786	10	4	—	—
December.....	42,381	10	4	—	—
1946—					
January.....	34,372	15	6	—	19,000
February.....	36,786	10	4	—	4,000
March.....	37,986	10	4	—	—
April.....	36,381	10	4	—	—
May.....	60,811	10	4	290	—
June.....	38,361	30	4	—	5,000
	655,143	162	52	486	28,000

Total Issues for Year: Cape.....	2,086,284	
Transvaal.....	2,447,092	
Natal.....	470,105	
O.F.S.....	201,547	
	5,205,028	
Sales Outside Union.....	655,143	@ 2d.
,, ,, ...	162 × 50	@ 7s. 6d.
,, ,, ...	52 × 100	@ 14s.
,, ,, ...	486 × 250	@ 32s.
,, ,, ...	28,000	C.C. @ £100 per 500 C.C.
TOTAL.....	5,860,171	Single Tubes.
	162 × 50	Amps.
	52 × 100	,,
	486 × 250	,,
	28,000	C.C.

5. Therapeutic Substances Regulations.

The Therapeutic Substances Regulations (Government Notice No. 1131 of 1935) framed under section 83 of the Medical, Dental and Pharmacy Act No. 13 of 1928 aim at the control of such substances as vaccines, sera, antitoxins, etc., the potency or purity of which cannot be tested adequately by chemical means.

During the year under review, penicillin and preparations containing penicillin, human blood, human blood serum and plasma were brought under the control of these regulations.

A provision was also added to these regulations, to the effect that penicillin and preparations containing penicillin could be supplied to the public only on prescription signed by a medical practitioner or dentist.

Under these Regulations certain Licences were issued in respect of certain specific biological products. The accompanying table (Table 14) sets these out in detail.

It is one of the requirements of the regulations that all biological products used in the country be tested from time to time. The subjoined table (Table 15) shews the number of such examinations carried out under these regulations at the Biological Laboratory, Cape Town, for the year under review. It will be observed that the number of examinations made is small, but this was due to curtailment of the work on account of lack of staff and also to difficulties encountered in connection with the feeding of laboratory animals.

The fact that for close on 35 years no case of plague, and since the advent of the flying-boat, no case of yellow fever, has originated at or from any of the ports of the Union speaks very highly for the continued efficiency and conscientiousness of every member of the staffs of the various ports concerned.

The following table (Table 16) reflects in brief tabular form the work done at the principal ports of the Union during the year under review :—

Table 16.—Ports of the Union: Health Measures, 1945–46.

Item.	Cape Town.	Durban.	Port Elizabeth.	East London.	Total.
Vessels dealt with	963	1,037	399	248	2,647
Cases Communicable Disease...	272	617	1	—	890
Vessels Disinfected	174	242	1	4	421
Consignments Second-hand Clothing, etc...	68	89	4	12 (?)	173
Deratization Fumigation — International Sanitary Convention	107	219	—	—	326
No. Exemption Certificates Issued—I.S.C...	17	62	—	—	79
Rodents Destroyed on Vessels and in Dock Areas..	4,255	11,921	390	3,054	19,620
Plague-Infected Rodents.....	—	—	—	—	—

Table 14.—Licences Issued under the Therapeutic Substances Regulations.

Therapeutic Substances.	Manufacturing Licences.			Import Licences.			Research Licences.			Vitamin Permits.		
	Issued 1945–46.	Cancelled 1945–46.	In Force 30/6/46.	Issued 1945–46.	Cancelled 1945–46.	In Force 30/6/46.	Issued 1945–46.	Cancelled 1945–46.	In Force 30/6/46.	Issued 1945–46.	Cancelled 1945–46.	In Force 30/6/46.
Antitoxic and Bacterial Sera.....	—	—	3	3	2	7	1	1	9	—	—	—
Antigens and Bacterial Vaccines..	—	—	14	2	2	12	1	1	9	—	—	—
Arsphenamines and Arsphenamine Derivatives.....	—	—	—	3	2	7	—	—	—	—	—	—
Insulin.....	—	—	—	4	2	7	—	—	—	—	—	—
Pituitary (Post. Lobe) Extract...	—	—	—	4	3	10	—	—	—	—	—	—
Sterilised Surgical Ligatures and Sutures.....	—	—	—	2	2	8	—	—	—	—	—	—
Sex Hormones and Sex Hormone Preparations.....	—	—	1	7	4	11	—	—	—	—	—	—
Vitamins and Vitamin-containing Preparations.....	3	—	5	2	2	6	—	—	—	2	—	20
Antivenomous Sera.....	—	—	—	—	1	1	—	—	—	—	—	—
Penicillins.....	—	—	—	1	—	1	—	—	—	—	—	—

Table 15.—Examinations carried out under the Therapeutic Substances Regulations, 1945–46.

Biological Product.	Manufactured in Union.	Imported into Union.	Unsatisfactory.
Diphtheria Anti-toxin.....	3	1	—
Tetanus Anti-toxin.....	2	—	—
Arsphenamine and Derivatives	—	6	1
Insulin.....	—	10	—
Pituitary (P.L.) Extracts.....	—	7	1
Sterilised Ligatures and Sutures	—	5	—
Vitamins and Vitamin Preparations.....	—	1	—
Others.....	—	1	—
Totals.....	5	31	2

6. Port Health Administration.

Port Health Administration constitutes one of the most important fields of this Department's many activities. It is mainly of a preventive nature, and is carried out in accordance with international agreements. The chief object and function is the prevention of the importation and exportation of infected persons, creatures or merchandise, particularly in respect of plague, yellow fever, cholera, typhus, smallpox and sleeping sickness—the so-called Formidable Epidemic diseases. The possibility of the conveyance of all infectious diseases, including influenza, tuberculosis and others is, however, also taken into account.

The following items of interest are culled from the Annual Reports of the Port Health Officers of Durban and Cape Town :—

Durban.—The volume of shipping handled at this port shewed an increase of 10 per cent. over the previous year (1,037 ships as against 930 for 1944–45). Only one case of Formidable Epidemic Disease was discovered—this was a case of mild smallpox on a ship from Bombay via Mombasa. Sporadic cases of malaria, typhoid, diphtheria and tuberculosis were discovered. The cases of malaria had become infected in East and West African Ports. Venereal diseases as usual have been responsible for more disability and loss of working time than any other infection amongst ships' crews. It is noted that many cases of recent venereal disease infection come from South American ports. More cases of venereal disease can be traced to other South African ports than formerly.

Cape Town.—There was a steady increase in the number of cases of infectious disease on vessels arriving at this port, due to the relaxation of restrictions on passenger services during the past 12 months. All vessels arriving direct from smallpox infected ports within the incubation period are throughly examined and the members of crews of ships who cannot produce evidence of recent successful vaccination are all vaccinated before being allowed ashore. (The same procedure is carried out at the other ports). Certain areas of East and West Africa were specified as yellow fever infected

areas by UNRRA, and since November, 1945 all passengers and crews of vessels proceeding to ports in those areas have been inoculated prior to sailing and certificates, duly signed and dated, were issued to each person. (The same procedure has been carried out at the other ports). Considerable improvements in the general sanitary set-up of the harbour area are recorded. There has been an influx of secondhand clothing and uniforms. These consignments are often unaccompanied by proper disinfection certificates, and on these occasions the Port Health authorities have had to disinfect the consignments themselves.

At both Durban and Cape Town fumigation of ships has been carried out efficiently and expeditiously, and even at the busiest periods there was never any undue delay to shipping arising from this cause.

V.—INFECTIOUS AND OTHER DISEASES.

1. Notifications.

The amplification introduced last year is again a feature of the Table of Notifications. Again, it must be stressed that the recording of deaths is very incomplete owing to the fact that registration of deaths of Natives is not compulsory in rural and Native Reserve areas. This fact must be kept in mind when studying both the figures of deaths and those of the notifications recorded, for by no means is every sick person seen by a doctor.

The total number of cases of infectious disease notified is slightly greater than last year (41,779 as against 41,615 for 1944–45 : an increase of 164). While notifications in respect of some diseases diminished, such as typhus (778 cases as against 2,909) and smallpox (1,271 cases as against 3,317), others have increased considerably, such as enteric fever (6,032 cases as against 3,470) and tuberculosis—all forms (19,887 cases as against 18,099).

It will be seen that a total of some 41,779 cases with 8,260 deaths due to notifiable, that is, largely preventable, diseases, are recorded. This figure is considered to be something short of the number which actually occurred, owing to faulty or incomplete notification. The diseases concerned number 21.

Table 17 shews the number of notifications and deaths in respect of the above-mentioned diseases.

The following notes from the Cape and Natal in respect of infectious diseases are of interest :—

(*a*) *Infectious Diseases in the Cape.*—It will be recalled that, at the beginning of the year under review, the Cape Province, especially the Transkei, was still suffering from the ravages of two formidable epidemic diseases—smallpox and typhus—which had been so prevalent during the preceding years. In the first few months of the year these diseases continued to be wide-spread but diminished in numbers in the Transkei. By the end of the year the incidence of smallpox and typhus had more or less returned to normal conditions. These results, it is considered, are to be ascribed to the successful control work which had been so vigorously undertaken in the Transkei last year. It is to be regretted that these average conditions are such that the Cape Province is never absolutely free of these infections. Consequently, throughout the year, occasional cases of smallpox and typhus have been reported each month. These have appeared almost entirely in the Transkei and Ciskei. No spread of an epidemic type has followed these sporadic outbreaks, indicative both of the success of control measures and of the establishment of immunity in the population at risk.

In respect of other infectious diseases there are no spectacular occurrences to report during the year under review. It is regretable that tuberculosis has shewn no signs of lessening its prevalence, while indices of enteric fever have continued to reveal unsatisfactory conditions in many of the areas, both urban and rural throughout the Cape. Tuberculosis is undoubtedly revealing itself more and more as the major public health problem of the Non-European communities, especially in and around the urban areas of the Province.

Considerable activity has been shewn by the departmental organization in its anti-rodent work in recent months. The majority of urban and rural local authorities have been visited by a Plague Inspector and have received advice on the situation in their areas and the methods of rodent control. Fortunately, there has been no untoward occurrence of plague though some misgiving was felt on the discovery that mortality among veld rodents on an epizootic scale must have taken place recently in the vast territory south of the Orange River down towards the mountainous areas of the Cape. The fact that these large areas are thinly populated and that there are as yet no close natural means of contact between the veld rodents and the domestic rodents in the more densely populated areas of the Cape probably explains the fact that this epizootic was not followed by human plague. The rodent population of the port areas has been kept under close observation, and the rodent gangs employed by the Department in the various ports have maintained an intense activity to reduce rodent harbourage and to deal with rodents discovered either in the dock areas or in ships.

In respect of the common communicable diseases, there is little worthy of record from this Province. Diphtheria maintains its unnecessary presence : cases have been reported throughout the year though no serious outbreaks have been recorded. The Department strongly supports the efforts of such larger local authorities as the Cape Town Municipality to immunise the child population. If the New York experience were not proof of the value of diphtheria immunization, the recent reports from the United Kingdom of the remarkable successes achieved by the British Ministry of Health during the War should be convincing. The United Kingdom, by a most successful widescale educational campaign, secured the wholsesale immunization of the child population against diphtheria, with the result that recorded deaths due to this disease fell from approximately 3,000 to 600 per annum.

The prevalence of poliomyelitis, such an unhappy feature in 1944–45, was fortunately not repeated in the Cape Province this year, though several isolated or sporadic cases were notified.

(*b*) *Infectious Diseases in Natal.*—The following table shews the notification of a number of non-formidable infectious diseases, given together with last year's figures by way of comparison :—

Disease.	1945–46.	1944–45.
	Cases.	Cases.
Scarlet Fever	213	347
Gonococcal Ophthalmia	212	141
Cerebro-spinal Meningitis	112	85
Puerperal Fever	94	96
Erysipelas	38	38
Trachoma	16	7
Encephalitis—Infective	13	7
Tetanus	2	2
Anthrax	1	8
Lead Poisoning	1	2
Relapsing Fever	1	2
Totals	703	735

It will be noted that gonococcal ophthalmia, trachoma, cerebro-spinal meningitis and infective encephalitis al shew quite a considerably increased incidence over last year ; while scarlet fever and anthrax shew an equally marked decrease. The incidence of puerperal fever, erysipelas, tetanus, lead poisoning and relapsing fever remains practically the same, On the whole, 1945–46 shews a slight improvement over 1944–45 in the sphere of minor infectious diseases.

TABLE 17.—NOTIFICATION OF DISEASES AND NUMBERS OF DEATHS DURING THE YEAR ENDED 30TH JUNE, 1946.

PROVINCE.	Amoebic Dysentery.		Anthrax.		Diphtheria.		Encephalitis, Infective.		Enteric or Typhoid Fever.		Erysipelas.		Leprosy.		Malta Fever.		Meningitis, Cerebro-Spinal.		Ophthalmia, Gonorrheal.		Ophthalmia, Neonatorum.		Plague.		Poliomyelitis, Acute.		Puerperal Fever, including Puerperal Sepsis.		Rabies.		Relapsing Fever.		Scarlatina or Scarlet Fever.		Smallpox.		Trachoma.		Tuberculosis of the Bone.		Tuberculosis of the Glands.		Tubercular Meningitis.*		Tubercular Peritonitis.		Tuberculosis, Pulmonary.		Typhus Fever.		TOTAL.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
I.—EUROPEAN.																																																
...s Transkei).....	—	—	2	—	422	20	6	5	200	14	44	—	—	—	3	—	87	11	3	—	31	—	—	—	37	6	23	1	—	—	—	—	653	—	6	—	1	—	34	18	7	1	13	29	6	4	585	209	26	1	2,189	319
.....	—	—	—	—	6	—	—	—	8	—	6	—	—	—	—	—	2	—	—	—	—	—	—	—	3	—	3	—	—	—	—	—	23	—	3	—	—	—	1	1	—	—	—	2	—	1	3	—	—	1	53	1
.....	1,033	6	1	—	341	8	—	—	107	6	22	—	—	—	—	—	13	2	1	—	17	—	—	—	8	2	3	—	—	—	—	—	199	—	3	—	4	—	3	1	1	—	1	2	—	1	198	95	19	—	1,978	123
.....	—	—	7	—	670	28	8	6	726	29	124	1	1	—	—	—	47	13	1	—	36	—	—	—	66	3	104	—	—	—	—	—	2,019	2	4	—	3	—	19	12	13	1	10	13	1	—	288	75	—	—	4,147	183
Free State.....	—	—	5	—	62	3	—	—	156	8	9	—	—	—	—	—	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	217	1	—	—	—	—	1	1	—	—	—	—	—	—	9	4	2	1	465	18
Total.....	1,033	6	15	—	1,501	59	18	11	1,197	57	205	1	1	—	3	—	151	26	5	—	85	—	—	—	114	11	131	1	—	—	—	—	3,111	3	16	—	8	—	58	32	21	2	24	44	7	5	1,083	383	47	3	8,834	644
II.—NATIVE.																																																
...s Transkei).....	1	—	4	—	84	6	3	2	478	39	12	—	21	—	—	—	110	20	17	—	58	—	12	1	12	2	50	4	—	—	1	—	15	—	177	7	9	—	101	79	44	1	27	52	23	16	2,943	1,294	316	14	4,518	1,537
.....	—	—	1	—	28	—	1	—	324	—	2	—	13	—	—	—	4	—	—	—	9	—	—	—	3	—	19	—	—	—	—	—	5	—	269	—	—	—	167	—	182	—	4	—	5	—	2,794	5	151	7	3,979	12
.....	3,289	185	—	—	230	15	12	1	1,098	152	11	—	72	—	—	—	63	2	25	—	106	—	2	—	22	—	62	2	—	—	1	—	16	—	391	36	9	—	288	21	125	1	40	12	50	7	3,268	1,096	129	12	9,314	1,542
.....	—	—	12	2	394	46	7	2	1,454	195	34	—	114	1	3	—	226	31	18	—	117	—	—	—	19	2	110	4	—	—	—	—	13	—	324	17	33	—	263	224	108	4	48	51	58	44	2,990	1,081	65	5	6,489	1,709
Free State.....	—	—	18	—	51	4	2	3	724	21	4	—	16	—	—	—	7	5	—	—	9	—	—	—	9	1	6	—	—	—	—	—	4	—	44	—	—	—	21	1	2	—	2	—	1	3	217	84	18	—	1,155	122
Total.....	3,290	185	35	2	785	71	25	8	4,078	407	83	—	236	1	3	—	410	58	60	—	298	—	14	1	65	5	247	10	—	—	61	—	53	—	1,205	60	51	—	840	325	461	6	121	115	143	70	12,212	3,560	679	38	25,455	4,922
III.—ASIATIC.																																																
...s Transkei).....	—	—	—	—	7	1	—	—	9	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	2	—	1	—	2	—	—	—	—	—	41	22	23	—	88	25
.....	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	9	1	4	—	36	—	—	—	7	—	22	—	—	—	—	—	2	—	15	—	2	—	2	—	—	—	—	—	2	—	4	—	7	—
.....	137	6	—	—	91	8	—	—	264	18	1	—	—	—	—	—	2	—	—	—	2	—	—	—	—	2	7	—	—	—	—	—	14	—	2	—	—	—	47	12	14	—	15	2	12	2	734	314	8	—	1,420	363
.....	—	—	—	—	16	3	1	—	24	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	—	—	6	7	—	—	37	20	—	—	114	36
Free State.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total.....	137	6	—	—	114	12	1	—	298	19	2	—	—	—	—	—	12	1	4	—	39	—	—	—	7	2	30	—	—	—	—	—	16	—	19	—	3	—	51	14	14	—	21	11	12	3	814	356	35	—	1,629	424
IV.—COLOURED.																																																
...s Transkei).....	—	—	2	—	272	34	9	1	353	44	57	1	3	1	—	—	383	38	6	—	208	1	1	—	28	4	92	8	—	—	6	—	66	3	17	—	18	—	246	88	49	6	87	174	28	18	3,304	1,654	11	—	5,246	2,075
.....	—	—	—	—	1	—	—	—	41	—	—	—	1	—	—	—	1	1	—	—	6	—	—	—	—	—	1	—	—	—	—	—	1	—	8	—	—	—	—	1	1	—	—	1	—	—	18	4	5	—	77	5
.....	72	1	—	—	29	4	—	—	23	7	4	—	6	—	—	—	3	1	—	—	6	—	—	—	1	—	4	—	—	—	—	—	3	—	3	—	—	—	4	1	4	—	3	1	1	—	109	64	—	—	263	73
.....	—	—	—	—	31	4	—	—	36	—	1	—	1	—	—	—	4	—	—	—	4	—	—	—	1	—	4	—	—	—	—	—	6	—	3	—	3	3	12	12	2	—	3	3	2	5	124	85	—	—	231	116
Free State.....	—	—	—	—	5	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	10	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	8	1	—	—	24	1
Total.....	72	1	2	—	338	42	9	1	459	52	62	1	11	1	—	—	391	39	6	—	222	1	1	—	31	4	106	8	—	—	6	—	75	3	31	—	18	—	262	101	56	6	93	179	31	23	3,563	1,808	16	—	5,801	2,270
V.—TOTAL (ALL RACES).																																																
...s Transkei).....	1	—	8	—	785	61	18	8	1,040	97	113	1	24	1	3	—	581	69	26	—	298	1	13	1	77	12	166	13	—	—	7	—	734	3	202	7	29	—	383	—	100	8	127	257	57	38	6,873	3,179	376	15	12,941	3,956
.....	—	—	1	—	33	1	1	1	374	—	8	—	14	—	—	—	7	—	—	—	10	—	2	—	6	—	19	2	—	—	1	—	28	—	280	—	—	—	168	—	183	—	4	1	5	—	2,817	9	160	8	4,118	18
.....	4,531	198	1	—	691	35	16	1	1,492	177	34	—	72	—	—	—	88	6	30	—	164	—	—	—	86	7	231	4	—	—	59	—	2,052	2	333	17	36	—	342	—	144	1	59	17	69	10	4,309	1,569	166	12	12,975	2,101
.....	—	—	19	—	118	7	2	3	886	29	14	—	17	—	—	—	9	5	—	—	10	—	—	—	—	—	7	—	—	—	—	—	223	1	44	—	—	—	22	—	2	—	2	—	1	3	234	89	20	1	1,644	141
Free State.....	—	—	23	—	1,111	81	16	8	2,240	232	183	1	121	1	3	—	279	44	19	—	162	—	—	—	86	7	231	4	—	—	59	—	2,052	2	333	17	36	—	342	—	144	1	59	17	69	10	4,309	1,569	166	12	12,975	2,101
Total.....	4,532	198	42	2	2,738	184	53	20	6,032	535	352	2	248	2	6	—	964	124	75	—	644	1	15	1	217	21	514	19	—	—	67	—	3,253	6	1,271	60	80	—	1,211	—	552	14	259	349	193	101	17,672	6,107	777	41	41,779	8,260

* The fact that in some instances more deaths have been notified than cases is to be explained by the incompleteness of the returns rendered to the Department.

† Plus 254 deaths at Departmental Leper Institutions.

The following table shews the incidence per 100,000 of the population, for Natal and Zululand, for the year 1945–46, in respect of 17 communicable diseases, in order of their severity :—

INFECTIOUS DISEASES : NOTIFICATIONS PER 100,000 OF THE POPULATION (ESTIMATED AT 2,350,000) NATAL AND ZULULAND, 1945–46.

Disease.	Rate per 100,000.	Disease.	Rate per 100,000.
Amoebiasis	199·00	Puerperal Fever	4·00
Enteric	17·87	Erysipelas	1·60
Diphtheria	29·62	Trachoma	0·70
Smallpox	20·25	Encephalitis—Infective	0·50
Scarlet Fever	9·10	Tetanus	0·10
Gonococcal Ophthalmia	9·00	Anthrax	0·04
Typhus	8·90	Lead Poisoning	0·04
Leprosy	6·42	Relapsing Fever	0·04
Cerebro-spinal Meningitis	4·80		

2. AMOEBIASIS.

Amoebiasis, including amoebic dysentery, was made a notifiable disease in Natal as from the 1st January, 1945. In its various forms this disease continues to be notified in large numbers ; but until diagnostic laboratory facilities, including experienced technicians, are available throughout Natal, instead of, as at present, only in the larger centres of Durban and Pietermaritzburg, the figures under the heading the " amoebiasis " or " amoebic dysentery " should be treated with reserve.

The drug diodoquin was tried out with considerable success, but so far the number of cases so treated has been too small to justify any definite conclusions being drawn.

In eight districts viz. Umzinto, Eshowe, Umbumbulu, Inanda, Nongoma, Pinetown, Pietermaritzburg and Durban 5,956 cases out of a total of 6,637 were notified. In Durban district alone there were 4,410 cases i.e. nearly two-thirds of the total.

3. BILHARZIASIS.

Transvaal.—The Transvaal Bilharzia Committee had resolved to resume the operations of its mobile unit as soon as possible after the end of hostilities, and the post of medical officer and nurse were advertised towards the end of 1945. Dr. R. van Wezel was appointed medical officer and assumed duty on 1st April, 1946. The nurse's post has, however, not yet been filled as no suitable applicant is available.

The survey of some of the Pretoria District Schools revealed an incidence of approximately 8·5 per cent in 700 children. The worst infestation was found at Klipdrift School, about 60 miles North-East of Pretoria where the incidence was approximately 17 per cent. At Mooiplaas and Hartbeestpoort Dam Schools bilharziasis has practically disappeared.

The examination of pupils in a certain number of the Waterberg schools revealed an average incidence of approximately 14 per cent. The highest infestations were met at Palmietfontein (20 per cent.), Rhenosterpoort (21·8 per cent.) and Alma (22 per cent.). At Alma the majority of cases were boarders from the district, while only 3 cases were day scholars.

The Bilharzia Committee has contacted the Bilharzia Research Bureau at Salisbury, Southern Rhodesia, and it is the intention to try out the Alves Cercarial antigen skin test and the intensive treatment method. The cercarial antigen skin test has already been tried out in Natal with quite encouraging results.

During the year 20 cases of bilharziasis in school children were treated at the School Clinic in Pretoria.

War conditions prevented the establishment of mass treatment centres during school holidays.

Transkei.—The following excerpts are from the Annual Report of the Assistant Health Officer, Umtata :—

> Owing to the fact that Umtata medical practitioners appeared to be treating more case of *schistomiasis* than usual during the latter half of 1945, a circular was addressed to all medical practitioners in the Transkei requesting them to notify cases of bilharzia treated. Replies were received from Flagstaff, Holy Cross Hospital, Qumbu and Umtata.
>
> A search was made for bilharzia-carrying snails in the streams in the immediate vicinity of Umtata, and *Physopsis africana* was found in practically every one of them. None has, however, so far been found in the Umtata River itself, although, no doubt, they are present. Apart from forbidding bathing in obviously infested pools no anti-bilharzial measures have been considered practicable.
>
> A geographical survey was commenced early this year and the following districts were found to be infected :—
>
> Flagstaff, Lusikisiki, Qumbu, Libode, Umtata, Tsomo and Mqanduli.

4. CANCER.

In 1921, the death rate due to cancer per 100,000 of the European population in the Union was 69·09. This rate had increased by more than 60 per cent. by 1944, having risen to 111·96. During this period, the death rate due to pneumonia and bronchitis per 100,000 of the European population fell from 136·15 in 1921 to 84·78 in 1944, pneumonia and bronchitis having thus given way to cancer in order of importance as a cause of death. The death rate for cancer is exceeded only by that due to diseases of the heart and circulatory system. In reviewing these figures it must, however, be remembered that the average age of the population under consideration is increasing, thus more people reach the higher age groups than formerly, and cancer is essentially a disease of the later decades of life. On the other hand, progress in medicine has rendered the treatment of pneumonia far more effective.

Cancer is feared by all ; but it cannot be too strongly stressed that the disease is not always incurable. In fact, certain types of cancer can definitely be cured. Early diagnosis and early treatment by skilled medical practitioners are essential. " Cancer Cures " are still being advertised by various types of healers in some cases cures being guaranteed. Local superficial growths may sometimes be removed, but the danger of the spread of the disease to other parts of the body must remain, and valuable time is lost by submitting to such unskilled forms of treatment.

The incidence of cancer among the Native population is not known, but it is generally considered to be lower than that among the Europeans. Although it is generally accepted that the Native races are more prone to develop primary cancer growths in situations uncommon in Europeans, they are by no means immune to the more usual types of cancer found among Europeans. It is possible that cancer as a cause of death may be overlooked in certain Native cases—symptoms which cause the average European to seek medical advice are sometimes borne, with surprising fortitude, by a Native, until some catastrophe, such as a ruptured bowel or a haemorrhage causes death. Unless a careful post-mortem examination is made, the underlying cancer may be overlooked.

The annual or periodical family health check-up is a method of very considerable value. It is the only chance there is of diagnosing the early symptomless cancer. It is the hope of the Department that the Health Centres will in due course provide such a service, based on the family as a unit ; but there is no reason why the routine family health check-up should not be commenced on a voluntary basis as a private arrangement between the family and the family doctor.

5. Diphtheria.

Throughout the year there has been an average of approximately 7·5 cases of diphtheria notified every day in South Africa. As shewn in previous reports the incidence of this preventable disease compares very unfavourably with that of other civilized countries. Reports from district surgeons and medical officers of health stress the lack of interest shewn by parents in availing themselves of facilities offered in the way of immunization. It is therefore of interest to quote from the Social Survey Report of October, 1945 (Ministery of Health, England) ;—

> " *Only* 24 *per cent. of mothers knew that diphtheria was an infectious disease* ; 23 *per cent. thought it was due to bad drains or dirt, and the rest said that they did not know its cause or gave other answers* ; *yet this ignorance has not prevented most of them having children immunized. Mothers living in small towns and in the country were on the whole better informed than mothers living in large towns. Mothers had learnt about immunization from newspapers or magazines* (75 *per cent.*) *over the radio* (50 *per cent*), *at cinemas* (40 *per cent.*) *or from posters* (87 *per cent.*) ".

It will thus be seen that the written rather than the spoken word played the most important rôle in educating the public, and this gives a valuable pointer as to the most productive method of propaganda. To continue the quotation :

> " *Of the immunized children* 34 *per cent. were protected at the suggestion of the school,* 19 *per cent. at the suggestion of the clinic, and* 6 *per cent. and* 5 *per cent. at the suggestion of health visitors and doctors* ; 35 *per cent. of mothers had had children protected on their own initiative. Among interviewed mothers who had not had their children immunized only* 15 *per cent. said they did not believe in it* ; 26 *per cent. said the husband objected or that the child would be frightened. The largest group of unprotected children* (*amounting to* 35 *per cent. of the whole unprotected group*) *was accounted for by apathy or ignorance on the part of the mother* ".

From the above it will be noted that the school takes credit for no less than 34 per cent. of the number of children immunized thus underlining the important rôle that can be played by the school as a centre for propaganda against the disease. The large percentage of non-immunized children attributed to objections or apathy and ignorance likewise emphasise the need for intensive propaganda by the most productive methods, i.e., literature of different kinds.

The department, in its efforts to aid local authorities in the campaign against this lethal disease of childhood, has, in terms of section 8 (*f*) of Act 51 of 1946 (the Public Health Amendment Act of 1946), the power to refund the total approved nett cost actually and necessarily incurred by a local authority in respect of material used for immunizing any persons within its area of jurisdiction against diphtheria, or it may supply such material free of charge. Prior to the promulgation of the recent amendment referred to the Department was only authorised to refund one-half of the cost of such material. It is sincerely trusted that local authorities will avail themselves more frequently of the greater measure of assistance which is now offered and that they will play a more active part in combating this disease than they have done in the past.

The quotations given above are useful pointers as to the measures that are available to even the smaller towns. The South African Red Cross Society possesses literature which is at their disposal and the co-operation of teachers and voluntary health bodies would doubtless be given if solicited. It is again urged that every local authority should avail itself of the free immunizing material offered by this Department and that each one should take active steps to inaugurate an anti-diphtheria campaign in its area of jurisdiction.

In this connection it is desired to repeat that the highest incidence of cases occurs between the ages of 1 and 5 years and the greatest number of deaths in the 0 to 4 years age group. By the age of 5 years nearly half the total number of cases and most of the deaths have occurred. This shows the imperative need for immunization at a very early age. Experience has shown that the ideal age for protecting the child is between the 6th and the 12th month of life. It should be strongly stressed that the *younger* the child the less the reaction ; in fact, in infants there is very little reaction at all.

Immunization may be carried out by giving two small injections, the first of 0·2 c.c. of Alum Precipitated Toxoid, and the second of 0·5 c.c. of the same material, after an interval of 4 to 6 weeks. Ramon's anatoxin is also used ; this, however, entails three injections of 0·5 c.c., 1 c.c., and 1·5 c.c. with an interval of three weeks between the first and second and two weeks between the second and third injections.

Older children are sometimes immune to the disease, despite the fact that they may not have had it. The percentage of children who have acquired natural immunity is higher in the higher age groups ; thus the older the age group the greater the proportion of children who are naturally immune. Nevertheless older children who have not acquired natural immunity should be protected by immunization in the manner already described. In children over the age of 7 or 8 years, however, it is advisable to carry out the Schick test before immunization. This test will determine whether they are susceptible to diphtheria, and therefore whether they should be immunized. A negative test result will render this unnecessary and avoid a possible unpleasant reaction.

The Moloney test may be done at the same time as the Schick test. The former test will reveal any undue sensitivity to immunization. In that case the child should be desensitized with very small doses of anatoxin before giving the three injections of this substance.

Thus these two tests serve the useful purpose of determining susceptibility to diphtheria and sensitivity to the protecting injection. They should also serve to allay the fears of those parents who apprehend harm to their children.

Until both local authorities and parents awake to their responsibilities to the children of the nation the deplorable toll of avoidable death and disease will go on and South Africa will continue to compare unfavourably with other civilized countries in this respect.

6. Acute Poliomyelitis (Infantile Paralysis).

The incidence of acute poliomyelitis for the year under review shewed a considerable decrease over that of the previous year, namely, 216 cases as against 1,380 for 1944–45. The number of deaths recorded are also correspondingly less, namely, 23 as against 104 for 1944–45. The case death rate, however, was higher in 1945–46 than in 1944–45, namely, 10·6 per cent. as against 7·5 per cent. It would seem, therefore, that the virus of the disease is at least as virulent as during the previous year, but that the immunity of the general population is higher. It is, however, well known that the case mortality is usually lower during an epidemic of poliomyelitis because it is only at such times that many cases of the so-called " abortive type " of the disease are recognised and notified. In normal times these cases are often, if not usually, overlooked and it is only the severe cases, with a high mortality, which are recognised.

The above rates are very similar to those experienced in Australia. One conclusion to be drawn would appear to be that there exists in the country a considerable reservoir of virulent poliomyelitis, and that therefore both standard precautionary measures and continued research into all aspects of this very alarming and crippling (and often fatal) disease should not be relaxed.

Tables 19, 20 and 21 shew the incidence and distribution of poliomyelitis, according to province, race and age.

TABLE 18.—DIPHTHERIA—DISTRIBUTION OF CASES AND DEATHS—BY RACE AND AGE—REPORTED DURING THE YEAR ENDED 30TH JUNE, 19.6.

PROVINCE.	CASES.						DEATHS.					
	AGE GROUPS.											
	Under 1 Year.	1–4.	5–9.	10 +.	Total.*	Incidence Rate per 100,000 of Population.	Under 1 Year.	1–4.	5–9.	10 +.	Total.*	Incidence Rate per 100,000 of Population.
EUROPEAN.												
Cape (excluding Transkei)..	9	164	115	134	422	49·79	3	13	4	—	20	2·33
Transkei	—	1	2	3	6		—	—	—	—	—	
Natal	14	89	97	141	341	14·64	2	6	—	—	8	3·43
Transvaal	28	249	232	161	670	64·31	5	13	9	1	28	2·69
Orange Free State	—	25	23	14	62	30·83	—	1	1	1	3	1·49
UNION	51	528	469	453	1,501	64·23	10	33	14	2	59	2·53
NATIVE.												
Cape (excluding Transkei)..	4	46	11	23	84	4·73	—	4	1	1	6	0·26
Transkei	2	11	10	3	26		—	—	—	—	—	
Natal	35	75	31	89	230	13·54	4	7	4	—	15	0·88
Transvaal	24	173	92	105	394	12·92	5	29	5	7	36	1·18
Orange Free State	—	20	13	18	51	7·72	—	3	—	1	4	0·61
UNION	65	325	157	238	785	10·15	9	43	10	9	61	0·79
ASIATIC.												
Cape (excluding Transkei)..	—	3	4	—	7	41·42	—	1	—	—	1	5·92
Transkei	—	—	—	—	—		—	—	—	—	—	
Natal	6	38	21	26	91	39·89	2	4	—	2	8	3·51
Transvaal	1	5	6	4	16	42·66	—	—	3	—	3	7·99
Orange Free State	—	—	—	—	—	—	—	—	—	—	—	—
UNION	7	46	31	30	114	40·35	2	5	3	2	12	4·60
MIXED AND OTHER COLOURED RACES.												
Cape (excluding Transkei)..	28	149	41	54	272	33·71	4	28	2	—	34	4·18
Transkei	1	—	—	—	1		—	—	—	—	—	
Natal	4	12	4	9	29	12·82	—	4	—	—	4	17·81
Transvaal	7	15	6	3	31	56·09	2	2	—	—	4	7·24
Orange Free State	—	—	3	2	5	35·87	—	—	—	—	—	—
UNION	40	176	54	68	338	37·35	6	34	2	—	42	4·64
TOTAL—ALL RACES.												
Cape (excluding Transkei)..	41	362	171	211	785	23·05	7	46	7	1	61	3·20
Transkei	3	12	12	6	33		—	—	—	—	—	
Natal	59	214	153	265	691	31·66	8	21	4	2	35	1·65
Transvaal	50	442	336	273	1,111	26·55	12	44	17	8	81	1·94
Orange Free State	—	45	39	34	118	13·36	—	4	1	2	7	0·80
UNION	163	1,075	711	789	2,738	24·32	27	115	29	13	184	1·63

* Includes cases where the age is not stated.

TABLE 19.—ACUTE POLIOMYELITIS.
DISTRIBUTION OF CASES AND DEATHS—BY RACE AND AGE—REPORTED DURING THE YEAR ENDED 30TH JUNE, 1946.

PROVINCE.	CASES.							DEATHS.						
	AGE.					Total Cases.	Incidence Rate per 100,000 of Population.	AGE.					Total Deaths.	Death Rate per 100,000 of Population.
	Under 1 Year.	1–4.	5–9.	10–19.	20*.			Under 1 Year.	1–4.	5–9.	10–19.	20*.		
EUROPEAN.														
Cape (excluding Transkei)	5	16	5	7	4	37	4·65	1	3	1	1	—	6	0·70
Transkei	—	1	—	2	—	3		—	—	—	—	—	—	
Natal	1	2	1	3	1	8	3·43	—	—	—	2	—	2	0·86
Transvaal	2	24	23	9	8	66	6·43	—	1	1	—	1	3	0·07
Orange Free State	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UNION	8	43	29	21	13	114	4·88	1	4	2	3	1	11	0·47
NATIVE.														
Cape (excluding Transkei)	1	4	3	3	1	12	6·06	1	1	1	—	—	3	0·13
Transkei	—	3	—	—	—	3		—	—	—	—	—	—	
Natal	—	17	3	1	1	22	1·31	—	—	—	—	—	—	—
Transvaal	—	10	4	2	3	19	0·55	—	—	1	—	1	2	0·07
Orange Free State	—	3	1	4	1	9	1·36	—	1	—	—	—	1	0·15
UNION	1	37	11	10	6	65	0·84	1	2	2	—	1	6	0·05
ASIATIC.														
Cape (excluding Transkei)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Transkei	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Natal	—	3	2	1	1	7	3·07	—	—	1	1	—	2	0·88
Transvaal	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Orange Free State	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UNION	—	3	2	1	1	7	2·44	—	—	1	1	—	2	0·71
MIXED AND OTHER COLOURED RACES.														
Cape (excluding Transkei)	3	17	—	3	2	25	3·07	1	2	1	—	—	4	0·49
Transkei	—	—	—	—	—	—		—	—	—	—	—	—	
Natal	—	1	2	—	—	3	1·33	—	—	—	—	—	—	—
Transvaal	—	1	—	—	—	1	1·81	—	—	—	—	—	—	—
Orange Free State	—	—	—	1	—	1	7·16	—	—	—	—	—	—	—
UNION	3	19	2	4	2	30	3·31	1	2	1	—	—	4	0·44
TOTAL—ALL RACES.														
Cape (excluding Transkei)	9	37	8	13	7	74	1·99	3	6	3	1	—	13	0·32
Transkei	—	4	—	2	—	6		—	—	—	—	—	—	
Natal	1	23	8	5	3	40	1·83	—	—	1	3	—	4	0·18
Transvaal	2	35	27	11	11	86	2·06	—	1	2	—	2	5	0·12
Orange Free State	—	3	1	5	1	10	1·14	—	1	—	—	—	1	0·11
UNION	12	102	44	36	22	216	1·92	3	8	6	4	2	23	0·20

* Includes cases where the age is not stated.

Table 20.—Acute Poliomyelitis.

Notifications and Deaths—By Month—Reported during the Year ended 30th June, 1946.

Month.	Cape (excluding Transkei).				Transkei.				Natal.				Transvaal.				Orange Free State.				Union.			
	European.	Native.	Asiatic.	Coloured.	European.	Native.	Asiatic.	Coloured.	European.	Native.	Asiatic.	Coloured.	European.	Native.	Asiatic.	Coloured.	European.	Native.	Asiatic.	Coloured.	European.	Native.	Asiatic.	Coloured.
NOTIFICATIONS.																								
1945 July	3	1	—	4	—	—	—	—	—	6	—	—	1	1	—	—	—	1	—	—	4	9	—	4
August	2	1	—	—	—	—	—	—	—	2	1	—	1	—	—	—	—	—	—	—	3	3	1	—
September	2	1	—	2	—	—	—	—	—	2	1	—	3	1	—	—	—	—	—	—	5	4	1	2
October	3	—	—	3	—	—	—	—	—	—	1	—	2	1	—	—	—	3	—	—	5	4	1	3
November	3	—	—	3	—	—	—	—	—	1	—	1	2	—	—	1	—	—	—	—	5	1	—	5
December	—	2	—	4	1	—	—	—	—	—	—	—	9	2	—	—	—	1	—	—	10	5	—	4
1946 January	4	1	—	3	—	—	—	—	3	—	—	—	18	5	—	—	—	—	—	—	25	6	—	3
February	4	2	—	1	2	—	—	—	1	1	1	—	10	2	—	—	—	1	—	—	17	6	1	1
March	4	1	—	1	—	1	—	—	1	5	—	—	5	2	—	—	—	—	—	—	10	9	—	1
April	5	1	—	2	—	2	—	—	2	1	2	—	3	1	—	—	—	2	—	1	10	7	2	3
May	4	2	—	1	—	—	—	—	—	2	—	—	3	—	—	—	—	—	—	—	7	4	—	1
June	3	—	—	4	—	—	—	—	1	2	1	—	9	4	—	—	—	1	—	—	13	7	1	4
Total	37	12	—	28	3	3	—	—	8	22	7	1	66	19	—	1	—	9	—	1	114	65	7	31
DEATHS.																								
1945 July	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	1	1	—
August	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
September	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—
October	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	1	—
November	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
December	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	1
1946 January	1	—	—	1	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	1
February	2	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	3	2	—	—
March	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—
April	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
May	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
June	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	6	2	—	4	—	—	—	—	2	—	2	—	3	2	—	—	—	1	—	—	11	5	2	4

Table 21.—Acute Poliomyelitis.

Distribution of Cases and Deaths by Race and Area.

Reported during the Year ended 30th June, 1946.

Province.	Cases.				Deaths.			
	Urban.	Rural.	Total.	Incidence Rate per 100,000 of Population.	Urban.	Rural.	Total.	Death Rate per 100,000 of Population.
I.—European.								
Cape (excluding Transkei)	28	9	37	4·65	6	—	6	0·67
Transkei	3	—	3		—	—	—	
Natal	6	2	8	3·43	1	1	2	0·86
Transvaal	54	12	66	6·33	3	—	3	0·29
Orange Free State	—	—	—	—	—	—	—	—
Total	91	23	114	4·88	10	1	11	0·47
II.—Native.								
Cape (excluding Transkei)	7	5	12	6·06	—	2	2	0·09
Transkei	1	2	3		—	—	—	
Natal	5	17	22	1·29	—	—	—	—
Transvaal	8	11	19	0·62	2	—	2	0·07
Orange Free State	3	6	9	1·36	—	1	1	0·15
Total	24	41	65	0·84	2	3	5	0·06
III.—Asiatic.								
Cape (excluding Transkei)	—	—	—	—	—	—	—	—
Transkei	—	—	—	—	—	—	—	—
Natal	5	2	7	3·07	—	2	2	0·88
Transvaal	—	—	—	—	—	—	—	—
Orange Free State	—	—	—	—	—	—	—	—
Total	5	2	7	2·43	—	2	2	0·71
IV.—Coloured.								
Cape (excluding Transkei)	15	13	28	3·44	3	1	4	0·49
Transkei	—	—	—		—	—	—	
Natal	1	—	1	4·42	—	—	—	—
Transvaal	1	—	1	1·81	—	—	—	—
Orange Free State	1	—	1	7·16	—	—	—	—
Total	18	13	31	3·42	3	1	4	0·44
V.—Total (All Races).								
Cape (excluding Transkei)	50	27	77	2·07	9	3	12	0·30
Transkei	4	2	6		—	—	—	
Natal	17	21	38	1·74	1	3	4	0·18
Transvaal	63	23	86	2·06	5	—	5	0·12
Orange Free State	4	6	10	1·14	—	1	1	0·11
Total	138	79	217	1·93	15	7	22	0·11

7. Leprosy.

In the Union there are 5 Leper Hospitals housing some 2,214 leper patients of both sexes (on June, 30th, 1946). Of this total, 65 or approximately 3 per cent are Europeans, and 2,149 or approximately 97 per cent. are Non-Europeans. Among the population as a whole the incidence rate among the Non-Europeans is over 8 times as high as that among the Europeans. The disease is known to be associated with poverty, malnutrition and overcrowding.

Research into the methods of treatment of leprosy continues and many new drugs have been tried.

Table 22.—Leper Institutions—Patients therein on 30th June, 1946.

Institution.	Europeans.		Native.		Mixed Coloured.		Asiatic.		Total.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Persons.
Pretoria	40	25	582	328	58	34	6	2	686	389	1,075
Mkambati	—	—	89	85	—	—	—	—	89	85	174
Emjanyana	—	—	236	190	—	—	—	—	236	190	426
Amatikulu	—	—	244	167	—	—	—	—	244	167	411
Bochem	—	—	66	62	—	—	—	—	66	62	128
Total	40	25	1,217	832	58	34	6	2	1,321	893	2,214

Table 23.—Leprosy: First Admissions, Recrudesced Cases, Discharges and Deaths, year ended 30th June, 1946.

Institution.	Admissions for First Time.	Recrudesced.	Discharged.	Died.
Pretoria	297	44	168	98
Mkambati	31	9	54	16
Emjanyana	106	22	179	57
Amatikulu	112	24	100	69
Bochem	20	2	6	14
Total	566	101	507	254

Table 24.—Leprosy Cases remaining in their Own Homes on 30th June, 1946.

	Certified and Awaiting Removal to Leper Institution.	Home Segregated.	Discharged from Leper Institutions, still under surveillance.	Total.
Cape Province (excluding Transkei)	4	2	116	122
Transkei	9	—	773	782
Transvaal	3	—	566	569
Natal	15	—	355	370
Orange Free State	1	1	130	132
Union	32	3	1,940	1,975

8. Malaria.

I. *General.*—Routine anti-malaria measures were carried out in the malarious areas of Natal and Zululand and of the Transvaal throughout the year under review. Though many indications at the commencement of the season pointed to a distinct threat of a fairly severe malaria season, it is satisfactory to record that the possible epidemic did not eventuate due to the energetic anti-malaria steps taken by all concerned. The following are relevant extracts from the reports of the Deputy Chief Health Officer, Durban, Deputy Chief Health Officer (Railways) and the Senior Malaria Officer, Tzaneen, Transvaal.

(A) *Natal and Zululand.*—The prolonged drought in 1945 extended into midsummer resulting in devegetation of surface soil, and giving rise to high ground temperature. This combination of climatic factors has previously proved to produce optimum conditions for prolific breeding of *A. gambiae*, the mosquito vector responsible for epidemic malaria in this province. Northern Natal and Zululand were most severely affected by the drought. The rainfall at Nongoma, the centre of these areas for the period July to December, 1945, was 7·54 inches compared with 19·19 inches for the corresponding period in 1944.

Prior to the onset of rains in January the breeding of malaria vectors and the incidence of malaria was comparatively low for that period of the year. Following the rains there was a rapid increase in *A. gambiae* breeding in all the low-lying areas, from where, on account of favourable climatic conditions, there was a steady outward spread. By April, *A. gambiae* breeding and adult infestation of dwellings were being located in areas of the districts of Vryheid, Paulpietersburg, Utrecht and Nqutu which are affected only during epidemic years. These areas lie west of the endemic areas of Northern Zululand where organised control has not yet been introduced.

To the south, where organised control is exercised over the coastal areas, there was no marked westward spread of vector breeding although foci of breeding were located in sections of the river valleys further west than usual. The absence of any organised control in the costal districts of Northern Zululand, facilitates the spread of *A. gambiae* breeding westwards, either by a natural overflow of breeding or through dispersal of adult insects by vehicular traffic along the main routes, which run from east to west.

The number of *anopheline* mosquito specimens identified at the Durban Pathological Laboratory, where this work is centralised is reflected hereunder:—

A. gambiae.		*A. funestus.*		*Other Species.*		
Larvae.	*Adults.*	*Larvae.*	*Adults.*	*Larvae.*	*Adults.*	*Total.*
1,429	8,703	42	291	42,585	2,052	55,102

The incidence of malaria during the year showed a slight increase as compared with previous years, and is reflected in the number of positive slides examined at the laboratory where this service is provided free.

The numbers of positive slides examined since 1941-42 when similar climatic conditions obtained, are as follows:—

1941–42.	1942–43.	1943–44.	1944–45.	1945–46.
668	173	203	139	451

While the numbers of slides submitted may not reflect the total cases of malaria, they provide a reliable index of the fluctuation in incidence from year to year.

As in the season 1941–42 the heaviest infection was again centred in the districts of Ubombo, Ngotshe, Nongoma and Mahlabatini in Northern Zululand.

Of the total number 69 were European, 19 of which were imported cases by sea or overland from adjoining territories. The remaining 382 were Native cases of which 138 were from the Nongoma district.

The high incidence in the Nongoma district as compared with the other Native areas, is primarily due to the influx of highly susceptable Natives from farms in the inland malaria-free areas. These Natives, on account of the already overcrowded state of healthy sections of the district are obliged to accept sites down in the valleys which, due to malaria, are sparsely populated.

The incidence of malaria among Europeans was, except for isolated infections, restricted to the low veld areas of Northern Zululand and Natal, where no concerted action is taken by the European community to control malaria on organised lines.

It is the desire of the Department to establish some system of organised control on these northern areas and steps are being taken to accomplish this aim before next season.

The European inspectorate staff of the Department, depleted at the outbreak of war, had not yet been brought up to full strength and this proved a severe handicap under the adverse conditions which prevailed during the season.

During the year the following inspections were carried out by the European Inspectorate staff :—

Areas of local authorities	111
Areas of Malaria Committees	137
Farms	372
Housing	55
Business Premises	87
Native Reserves	692

While credit for any success achieved in the control of malaria in this province has been due to the active co-operation of the individuals with the local organisations constituted for the purpose, a note of warning should be sounded. Freedom from the disease begets indifference, and this freedom for some years in areas, in which malaria was, prior to control, accepted as being unavoidable, is tending to make the average individual lax. This laxity demands increased vigilance on the part of local inspectors to keep interest alive and maintain the present satisfactory position.

The use of liquid D.D.T. insecticide against harbouring adult vectors gives great promise of facilitating control in the rural areas. With adequate supplies now becoming available, it will be employed on a greater scale in the future, when it will be possible to assess more accurately its potentialities as an effective agent in the control of malaria.

During the year the closest co-operation was maintained between the Department and the various local authorities actively engaged in the carrying out of malaria control. The team spirit existing between the field staff working in contiguous areas ensured uniformity of control and played an essential part in the prosecution of malaria control in this province.

Table 25 summarises the work done in Natal and Zululand during the past 11 years.

(B) *Transvaal.*—Reference was made in last year's Annual Report to the scheme which had been put into operation for the direct Departmental control of malaria in the Transvaal, The first steps this year were to consolidate the previous year's gains and then to extend control measures.

The following areas were included in this year's programme and it will be noticed that the terrain is very much larger than that worked the previous year. Step by step more malaria areas are included in our programme and this will continue until all Transvaal malaria areas are controlled :—

Zoutpansberg.—Brak and Hout Rivers and portions of Sand and Njelele Rivers. Levubu Land Settlement and the territory immediately adjoining municipal control scheme up to and including Senthulmula's Location (Native Reserve).

Eastern Transvaal.—Terrain between Nelspruit to and including Boulders, Kaalrug and Letubi. Also from Louw's Creek to Komatipoort.

Pietersburg.—Hout River and portions of Sand and Brak Rivers.

Potgietersrust.—Five new groups of farmers were formed on the Springbok Flats. (B Scheme). Portions of the Nyl River to Vaaltyn's Location and 80 miles of the Magalakwyn River, the whole of the Witrivier. Portions of the Palala River to Shongwani's Location.

Lydenburg.—The whole of the Steelpoort and Spekboom Rivers, the Ohrigstad valley.

Nylstroom.—Commencement was made to extend activities deep into the Bushveld, 150 miles from Nylstroom, and this will receive further attention next year.

Groblersdal.—Remaining portions of the Olifants, Elands, Moos, Bloed, Selons and Kuils Rivers and their tributaries. Also water collections in the Middleveld.

Letaba.—Portions of the Middel and Great Letaba Rivers and tributaries of the latter. Portions of the Brandboontjies and Koedoe Rivers.

The basic control of malaria is divided into :—

(*a*) State activities, where the State undertakes complete executive control tasks and this is largely the case in Native Reserves.

(*b*) Co-operative voluntary group formation of the farming or rural population—largely amongst Europeans.

The latter groups did good work on the whole and now that all the farmers are conversant with the responsibilities they share under the scheme, other farmers not yet grouped are asking to be included in the scheme. Those convinced of the value of oiling are making effective propaganda for the group system amoungst the sceptics. Although the vast majority of people in the controlled areas were enthusiastically co-operating with the malaria staff, a few farmers failed to do anything to control malaria on their farms and were frankly hostile to the whole scheme. It was on some of these farms that the first *A. gambiae* were discovered on the Flats. The only European case in the controlled section of Potgietersrust occurred on one such farm.

In the controlled area only five European cases, confirmed by blood-smear examination, were reported during this

TABLE 25.—MALARIA CONTROL NATAL AND ZULULAND, 1936–1946.

Year.	Native Staff Employed.		Materials Used.		Huts Sprayed.		Positive Blood Slides.	Quinine Issued × 5 grs.	Data from Trained N.M.A. Reports.		
	Native Assts.	Sprayers.	A.M. Oil, Gallons.	Insecticide, Gallons.	Weekly.	Check Spray.			No. of Natives Seen.	No. of Sick.	No. of Deaths.
1935–36	40	50	3,500	6,000	16,000	31,000	329	1,449,000	257,960	3,170	72
1936–37	45	55	5,560	7,500	22,000	26,000	462	848,500	206,896	2,500	115
1937–38	46	110	5,000	10,000	25,000	42,000	450	896,716	298,243	1,910	46
1938–39	56	148	12,000	14,000	30,000	25,000	449	779,900	380,003	1,557	40
1939–40	52	89	12,000	9,000	22,000	50,000	135	878,500	336,340	428	13
1940–41	48	115	13,500	12,000	27,000	40,000	187	300,000	320,770	698	12
1941–42	50	141	15,500	18,000	38,000	29,000	663	335,000	280,850	201	21
1942–43	52	103	11,000	11,000	23,000	40,000	173	93,000	315,800	350	10
1943–44	50	85	7,600	9,000	20,000	37,000	203	88,500	290,270	407	7
1944–45	47	76	8,000	7,500	18,000	31,000	139	82,700	234,356	237	9
1945–46	53	108	14,500	10,200	29,750	49,290	451	295,000	250,667	725	48

season, one case occurring in May in the Groblersdal district; but a limited number of cases (mostly relapses) occurred amongst the Natives in the area under control. In spite of this the farmers are unanimous that their Native labour was virtually unaffected by malaria this season. Some groups experienced difficulty in providing Natives as oilers and hut-sprayers and Natives had, therefore, to be recruited by departmental staff from locations and Reserves. The Natives made full use of the adequate supplies of mixed insecticides which were available at all the depots in the three districts throughout the season. Numerous households in these districts were visited during the year and advice was given on treatment for and protection against malaria. A large number of houses, especially in the Bushveld areas were still found to be badly constructed and ungauzed due to poverty in the vast majority of cases. Although many people bought D.D.T. insecticide as put up by the various commercial firms, they were found to be using it incorrectly and they were therefore instructed in the proper method of use.

Elsewhere in this report a comparison is made between the previous and this season's rainfall and it is clear that malaria control was more difficult this season. Roads were inaccessible for as long as a month on end.

The volume of the work undertaken is indicated by the quantities of malaria oil, pyagra and paraffin ordered this season :—

Malaria Oil	27,210 drums.....	1,177,240 gallons.
	(Consumption for 1944–45.	325,732 gallons).
Pyagra....	6,000 gallons.	
Paraffin....	100,000 gallons.	

Only 200 oil pumps were available and primitive control methods entailing heavy loss of oil and time had to be adopted. The oil is carried in an open 4 gallon container and a piece of sacking or cloth is used to sprinkle the oil on the water. This method wastes both oil and labour.

An acute shortage of 44 gallon containers occurred in March and supplies of oil were coming forward irregularly and in small quantities. In some areas reserves were badly depleted and often nearly exhausted. An all-out effort was made by the field staff to return empty containers and 7,405 such containers were returned this season. The position was relieved tremendously and no district ran out of oil at anytime; this was entirely due to the foresight of the field inspectorate staff.

Incidence of the Disease.—An attempt will now be made to indicate the effects of the building up of this control and Field Organisation, on malaria. In order to give this in its entirety preliminary figures must be given of the fainfall and mosquito population for the season 1944–45 and 1945–46 :—

RAINFALL.

District.	January to April		Increase in 1946.
	1945.	1946.	
Zoutpansberg.....	11·90	13·36	1·46
Pietersburg (N. West).....	6·46	10·16	3·70
Pietersburg (Olifants).....	8·20	17·30	9·10
Springbok Flats (North).....	12·67	18·79	6·12
Springbok Flats (South).....	15·67	24·46	8·79
Groblersdal.....	8·30	14·87	6·57
Eastern Transvaal.....	21·00	33·02	12·02
Lydenburg.....	6·00	14·52	8·52
Letaba.....	23·00	35·44	12·44

The general increase in rainfall for the corresponding rainy season of 1946 over 1945 varies from 1·46 inches in the Zoutpansberg to 12·44 inches in the Letaba districts. One month's continuous soft rains, January, 1946, changed Transvaal malaria areas into a sodden mass and 15 years of experience in malaria incidence lent itself to no other conclusion, but that malaria would be severe. Early in April, 1946, the Senior Malaria Officer, Tzaneen, pointed out—

> " . . . that the terrain was set for very extensive vector mosquito breeding throughout the Northern and Eastern Transvaal. Breeding did actually take place on a very large scale . . . larger than any of us had ever seen in the Transvaal; we were nervous of sporadic outbreaks at different points. Steps were immediately taken to strengthen our weakness with good results. . . . Some regions such as Groblersdal magistracy have had practically no cases whatsoever and throughout the Northern and Eastern Transvaal very little fever occurred amongst the unprotected Native population. The Springbok Flats farmers have never known such a good year in spite of the heavy rains. No sickness has occurred amongst their Native labour and extensive crops are being reaped . . . ".

The very low incidence of malaria in a potentially dangerous season was to a large extent attributable to :—

(*a*) The field staff which succeeded in getting anti-malaria supplies to points where most required.

(*b*) Winter control work along the rivers so that extensive vector mosquito breeding could not take place before enough water had accumulated, away from the perennial rivers, after the rains. In other words no large mosquito population was built up along the permanent rivers this season as happened in other years when winter nurseries were uncontrolled.

The quantities of quinine used this season are compared hereunder with the 1944–45 consumption and it will be seen that the quantities differ very slightly only, although as a result of the widespread heavy rains, much more malaria was anticipated and quinine distributed in all possible areas where malaria could break out. In some of these areas no malaria whatsoever occurred and fair quantities of quinine are still on hand. The quantities used are as follows (5 grain tablets) :—

Magisterial District.	Consumption, 1944–45.	Consumption, 1945–46.
Letaba.....	95,000	180,000
Zoutpansberg.....	228,000	454,000
Pietersburg.....	261,000	435,000
Potgietersrust.....	240,000	86,000
Waterberg.....	124,000	66,000
Groblersdal.....	188,000	20,000
Lydenburg.....	178,000	65,000
Eastern Transvaal.....	264,000	292,000
TOTAL.....	1,578,000	1,598,000

Other specific drugs against malaria were issued :—

Atebrin, 41,000 tablets: Plasmoquin, 14,000 tablets. Injections of atebrin and quinine were issued to district surgeons.

MOSQUITO POPULATION.

District.	January to April.	January to April.
	1945.	1946.
Zoutpansberg.....	C 1 in 8 huts, U 7 in 1 hut	C 1 in 3 huts, U 9 in 1 hut
Pietersburg (N.W.).....	C 1 in 5 huts, U 8 in 1 hut	C 1 in 26 huts, U 5 in 1 hut
Pietersburg (Olifants).....	C 1 in 9 huts, U 41 in 1 hut	C 1 in 3 huts, U 2 in 1 hut
Springbok Flats (N.).....	C 1 in 9 huts, U 1 in 3 huts	C 1 in 32 huts, U 1 in 1 hut
Springbok Flats (S.).....	C 1 in 22 huts, U 1 in 5 huts	C 1 in 24 huts, U 1 in 3 huts
Groblersdal.....	C 1 in 3 huts, U 5 in 1 hut	C 1 in 8 huts, U 1 in 8 huts
Eastern Transvaal.....	C 1 in 7 huts, U 4 in 1 hut	C 1 in 37 huts, U 4 in 1 hut
Lydenburg.....	No control	C 1 in 3 huts, U 4 in 1 hut
Letaba.....	C 1 in 3 huts, U 7 in 1 hut	C 1 in 9 huts, U 25 in 1 hut

C — Controlled Areas (mosquitoes per hut). U — Uncontrolled Areas (mosquitoes per hut).

There are over 300 quinine depots throughout the areas of the Transvaal. The more important ones are as follows :—

(1) *Letaba Magisterial District.*—Magistrate Tzaneen, Native Commissioners Tzaneen, Duivelskloof and Leydsdorp.

(2) *Zoutpansberg.*—Magistrate, Louis Trichardt and Native Commissioners at Sibasa and Louis Trichardt.

(3) *Pietersburg.*—Magistrate, Pietersburg and the Native Commissioner at Pietersburg, Bochem and Groot Spelonken.

(4) *Potgietersrust.*—Magistrate, Potgietersrust and S.J.P. Naboomspruit ; Native Commissioner, Potgietersrust.

(5) *Groblersdal.*—Magistrate, Groblersdal, Middelburg and S.J.P. Bronkhorstspruit, Native Commissioners, Nebo and Premier Mine.

(6) *Lydenburg.*—Magistrate, Lydenburg, Native Commissioner, Sekukuniland.

(7) *Nylstroom.*—Magistrate, Waterberg and Native Commissioner, Hamanskraal.

(8) *Nelspruit.*—Magistrate, Nelspruit, Barberton, Piet Retief and Carolina, S.J.P. Sabie. Native Commissioners Barberton, and Bushbuckridge.

As an essential auxiliary to all this State activity must be mentioned *domestic prophylaxis*. This is of course carried out by each careful inhabitant of the malaria areas. Anyone with a sound knowledge of *domestic prophylaxis* can keep himself free from malaria even where no outside anti-malaria work is carried out. Intelligent families proved this long before the State ever attempted to control malaria. Nevertheless, the combination of State activities with individual self-help is the ideal which is fast being realised in the Transvaal.

Education and Propaganda.—Educative propaganda is a principal feature of malaria control in the Transvaal, although necessarily curtailed during the war years, particularly since 1943.

During the current year two malaria classes were held :—

Railway Health Foremen from 5th to 12th October, 1945.

Students attended, 12.

D.P.H. class for doctors from 13th to 18th May, 1946. Students attended, 16.

Another feature of educational work in malaria is film propaganda and the Department is active in this direction, the only drawback being incomplete apparatus. This, however, will be rectified as world conditions improve.

Very active propaganda work is carried on amongst Native school teachers. Due to the enthusiasm of the Inspectors of Native Education, particularly of those stationed in Pietersburg, practical field classes with film demonstrations, not only on malaria, but also bilharzia, venereal diseases, leprosy and first aid were held for Natives.

II.—Experiments with D.D.T. in Malaria Control.

Owing to the widespread interest in the use of D.D.T. in malaria control, the following account is given of four sets of critical experiments carried out by departmental officers. These represent but a small part of the field investigations which are continually being made into new methods of control.

(*A*) *Adult Mosquito Control.*

(1) *Transvaal Experiment.*—The subjoined Table shews the number of adult mosquitoes collected from 26 huts in each of two sections in a selected area, namely at Thabina, Tzaneen, Transvaal. Time of experiment, 25th October, 1945 to 28th March, 1946.

No. of Weeks.	Adult Mosquitoes Caught.	
	D.D.T. Section.	Control Section.
1	—	218
2	2	376
3	—	415
4	5	502
5	4	707
6	5	500
7	16	830
8	26	1,116
9	4	413
10	5	468
11	3	471
12	27	720
13	17	640
14	13	189
15	1	347
16	34	1,015
17	101	852
18	214	1,064
18 weeks.....	477	10,843

The accompanying graph showing the results of an experiment carried out with 5 per cent D.D.T. in Kerosene is of interest.

(2) *Zululand Experiment.*—The subjoined Table gives the number of adult mosquitoes collected from 10 huts in each of 4 sections in a selected area in the highly endemic No. 3 Native Reserve, Hlabisa District, Zululand. Time of experiment, 12th February, 1946 to 14th May, 1946.

Number of Weeks.	D.D.T. Section.	No. 1 Pyagra Section.	No. 2 Pyagra Section.	Control Section.
1	—	21	18	22
2	—	23	21	56
3	1	34	24	60
4	—	56	44	90
5	—	137	30	115
6	2	186	41	148
7	—	127	52	130
8	2	145	14	136
9	1	210	54	107
10	1	105	30	69
11	—	54	31	81
12	—	37	9	127
13	2	46	17	39
14	—	66	18	47
14 Weeks.....	9	1,247	403	1,227

Conclusions.—Experiments so far carried out indicate that the application of a 5 per cent. D.D.T. solution (in kerosene) offers a more economical and effective method of malaria (mosquito) control in Native rural areas than any other method previously tried by this Department.

(*B*) *Larval Mosquito Control.*

(1) *Transvaal Experiment.*—Several attempts were made to determine the residual effect of D.D.T. in oil as a larvicide.

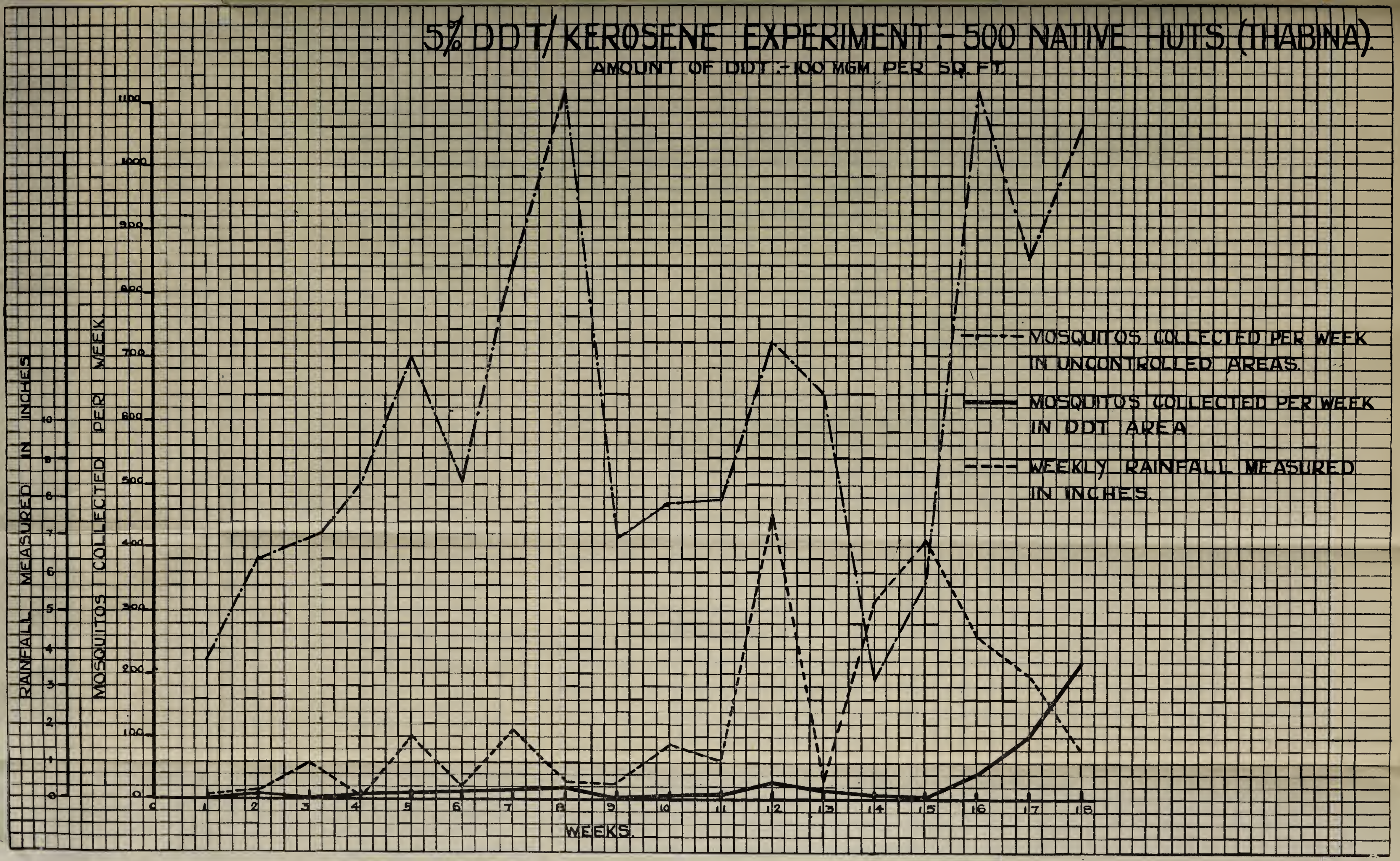
(i) Twenty square miles of Native territory with numerous streams, fountains and seepage waters were treated with a 10 per cent. D.D.T. anti-malaria oil mixture in January, 1946. Heavy rains washed every sign of the oil away the night after the application ; 70 gallons D.D.T./oil were used costing £23. This was re-applied the following week because mosquito larvae were again found ; but rains flooded the area once more and the experiment was discontinued.

(ii) Six miles of the Sand River, near Pietersburg was oiled with 10 per cent D.D.T./oil in January, 1946. The river became flooded and the experiment was upset. This was not repeated as it was too costly. No residual effect of D.D.T. could be found in any of these experimental areas after the rains.

Results.—Inconclusive. Further experimentation essential.

5% DDT/KEROSENE EXPERIMENT :- 500 NATIVE HUTS (THABINA).

AMOUNT OF DDT :- 100 MGM. PER SQ. FT.



(2) *Zululand Experiment.*—In this experiment attempts were made to spray a solution of D.D.T. on water by means of an aircraft. The experiments were carried out in November, 1945 on the waters of the Umfolozi River and small lakes or pans in the Mkuze Game Reserve, Zululand. The D.D.T. used was a 5 per cent. solution in kerosene and furnace oil.

Spraying technique.—The Anson plane used was fitted with two modified venturi tubes made to deliver approximately 30 gallons D.D.T. solution per minute. The speed of the plane was about 120 m.p.h., and the height from which the spray was delivered was 50 ft. Load capacity of the plane was 200 gallons D.D.T./oil mixture. The maximum time limit of each run was 7 minutes. Dosage was thus calculated to be approximately 1 gallon D.D.T. spray per morgen, or ½ gallon per acre.

Results.—These were not considered to be altogether satisfactory, owing chiefly to technical—especially flying—difficulties. These were due to the terrain itself, the bends in the river, vegetation on banks, etc. However, it may be stated that sufficient experience was gained to indicate that control of malaria by means of air-sprayed D.D.T. larvicides in South Africa is a special weapon which may be used effectively under special circumstances, e.g. when swampy areas are being opened up for closer settlement by agriculturalists.

III. South African Railways and Harbours Administration.—Malaria control measures as in previous years were vigorously applied on the Eastern Transvaal, Natal, Cape Northern and South West Africa Systems.

On all four of the Systems drought conditions were experieneed during the first half of the season and this was followed by torrential rains during the latter half. As a result of the heavy preeipitations, numerous pools of water were formed on the devegetated veld making ideal breeding places for malarial veetors. Control measures had consequently to be greatly intensified during February and March.

Seasonal Measures.

(1) *Transvaal.*—The high and extensive rainfall during January and February resulted in prolific breeding of malaria vectors in the Springbok Flats, along the main railway line from Pietersburg to Hammanskraal and in the Rustenburg area and this necessitated the drafting of additional health foremen and native oilers to these areas to intensify eontrol measures. As a result of the great expanses of water, due to the heavy rains it was impossible to do effective larval eontrol immediately after the rains had ceased. All efforts were, therefore, directed against the adult mosquito more especially as the quarters in these areas are not gauzed. For this purpose D.D.T. insecticide was used. These efforts were instrumental in keeping adult catches down to a minimum. A dry spell of weather of about a fortnight at the beginning of March, when breeding was at its height, eaused the drying up of the stagnant pools of water and this in turn prevented great numbers of malaria veetors from reaching the adult stage. This fact, together with the eontrol measures that were instituted, was in no small measure responsible for preventing an epidemic which might have assumed great proportions.

In the malarial areas, in spite of the increased rainfall, the position was always kept well under control, so much so that the adult catehes and eases of malaria were much less than those of the previous season.

(2) *Natal.*—Outside those areas in whieh Malaria Committees function on the North Coast much difficulty was experienced in ehecking the disease, due in the first place to the torrential rains, secondly to the laek of experieneed staff thirdly to the lack of material to repair the gauzing of the quarters, and lastly the loss of the motor trolley used by the health foreman operating on the Empangeni-Gollel Section, which necessitated his travelling by train and so greatly hampering control. The heavy and widespread rains resulted in the infiltration of *A. gambiae* into areas which are normally free of these insects, and resulted in cases of malaria amongst non-railway people as far as Paulpietersburg.

All these factors resulted not only in more *A. gambiae* mosquitoes being caught during the season under review than were collected collectively during the past three years, but also an increase of some 19 cases of malaria over that of last year.

(3) *South West Africa.*—Contrary to conditions in the Union the early part of the season was marked with heavy rains, whilst dry conditions were experienced during the latter half. This fact together with the control measures undertaken by the health staff kept the breeding of malaria veetors well in check, and *A. gambiae* was collected only on one oecasion at Tsumeb.

One health foreman assisted by a learner health foreman and two natives, were responsible for control measures on the narrow gauge. Due to the great distances between stations it was impossible to visit each station regularly once a week, but as a result of the close co-operation between the Administration and the various local authorities the work was undertaken by natives provided by the local authorities on the days when the health foreman was unable to visit any station. Checking up on the natives' work was done on the next visit.

(4) *Cape Northern.*—Malaria control measures are undertaken on the Bulawayo-Mafeking Section only.

Weather conditions on this section were similar to those experienced in the Transvaal, viz. drought conditions during the first half of the season and torrential rains during the latter half. Coupled with the heavy rains, weather conditions were favourable for the breeding of malaria veetors on a large scale and it was necessary to draft 3 health foremen and 6 natives to that area to control the breeding. During the month of March numerous adult mosquitoes were on the wing, particularly between Palapye and Tsessebe. Only one case of malaria was reported during the malaria season on this section.

Larvicides.—The following quantities of material were used on the respective systems :—

Transvaal	41,546 gallons.
Natal	16,314 gallons.
Cape Northern	1,232 gallons.
South West Africa	1,541 gallons.
TOTAL	60,633 gallons.

The total quantity of larvicide represents an increase of 19,253 gallons on all the systems collectively, as compared with the previous year's total, due to the heavy and widespread rains experienced on all systems, which resulted in extending and intensifying larvicidal measures.

Insecticides.—" Pyagra " was mainly used, and the total quantity used was 3,778 gallons in Transvaal, 2,547 gallons in Natal, 204 gallons on the Cape Northern System and 30 gallons in South West Africa.

These figures represent a decrease of 814 gallons in the Transvaal, an inerease of 387 in Natal, a decrease of 64 on the Cape Northern System and a decrease of 39 in South West Africa.

The decreased consumption in the Transvaal in spite of extensive and intensive anti-adult measures in both the malarious and epidemie areas, was due to the fact that 636 gallons of D.D.T. were used for spraying the quarters in the non-malarious areas and treating some 509 huts out of a total of 610 at Komatipoort. The residual effect of D.D.T. made further applications of this or any other insectieide to quarters and huts unnecessary. It is for this reason that less pyagra was used.

9. Plague.

Outbreaks.—There were only three outbreaks with a total of four cases during the year (Table 26). In the Queenstown outbreak on the Tarkastad border plague was contracted as a result of handling springhares. The public's attention is again drawn to the danger of handling sick or dead veld animals in endemic plague areas.

The accompanying map shows the distribution of the majority of human outbreaks that have occurred in Southern Africa since 1920. The map is not quite complete as the exact location of a number of outbreaks cannot be determined on the information available. Each dot represents the occurrence of one or more human outbreaks in an area approximately 17 miles square (i.e. within a $\frac{1}{4}$ degree latitude-longitude grid unit). Rodent plague is more widely distributed and extends from the Karroo and Highveld of the Union through the Kalahari regions of South-West Africa, Bechuanaland Protectorate, southern Angola and north-western Rhodesia (Barotseland). Plague is absent in the bushveld and lowveld of the Transvaal, in Natal and Transkei and along the coastal belt from the Western Cape to Port Elizabeth. Rodent plague has not yet been definitely recorded from the Caprivi or Southern Rhodesia. The most active centres in the Union at the present time are in the northern Orange Free State (districts of Bothaville, Kroonstad, Vredefort and Heilbron), on the border of the Transkei (districts of Glen Grey and St. Marks) and in the districts of Uitenhage and Port Elizabeth.

Outbreaks in adjoining territories.—No plague was reported from Basutoland or South-West Africa. There was a series of localised outbreaks in Ngamiland, Bechuanaland Protectorate, between December and March in the Lake Ngami and Makalamabedi areas (cf. last year's Annual Report). A Departmental Plague Inspector cooperated with the Bechuanaland Protectorate Medical Department in examining the conditions under which the recrudescence took place for comparison with the findings during the epidemic of 1944–45.

During these investigations it was shown that *P. pestis* is recoverable from infected fleas sent to the laboratory in 2 per cent. saline even after a long 8-day journey in the height of summer. This further extends the usefulness of this method of obtaining biological confirmation of plague. It is necessary to isolate *P. pestis* whenever plague is suspected as there are many organisms, both pathogenic and saprophytic, which bear a close resemblance to *P. pestis*.

Epizootics.—High rodent density in Bushmanland and the north-western Cape mentioned in last year's Annual Report, was suddenly reduced between September and November. Despite intensive field investigations and field inoculation of suspected material no cause for the mortality was discovered, although for practical purposes the epizootic was regarded as due to plague. There was a further decline in rodent numbers in the northern Orange Free State, but towards the end of the year (June, 1946) a slight increase became apparent.

Mortality amongst gerbils (*Tatera*) in the Roodepoort district was detected in May, three years after the plague epizootic of 1943. Plague was again suspected as a result of the examination of gerbils found dead. In conjunction with the Peri-urban Areas Health Board and the Johannesburg Municipal Health Department anti-rodent measures were instituted on the farms Zuurbekom, Doornkop and Vlakfontein, and adjoining areas. The provisional diagnosis of plague from microscopic examination was not however confirmed and although the same organism was seen in other gerbils it later transpired that the epizootic was being caused by *Listeria* (*Listerella monocytogenes* (Tiger River Bacillus). At the end of the period covered by this report (June 30th) anti-rodent measures were still in progress as it had not been conclusively proved that there was no mixed infection of *P. pestis* and *Listeria*.

Northern Orange Free State.—In view of the mining developments in the northern Free State generally and around Odendaalsrust in particular, the Department is taking steps to ensure that the mining companies are kept fully informed of the measure which should be taken in connection with rat-proofing and rodent destruction on their properties, to guard against palgue. More than half the battle against plague will be won, if, from the start, buildings of all descriptions provide no rodent harbourage. Rat-proofing principles are easy to apply in new buildings, but it is difficult and often impossible to render existing buildings rat-proof.

Plague Research Laboratory.—A Plague Research Laboratory was established in January by the Department, jointly with the S.A. Institute for Medical Research. The Department took over the U.D.F. Clinical Laboratory built during the war in the Institute grounds. The Ecologist's laboratory and field staff was increased from one to four and the Institute appointed a full-time pathologist with laboratory and secretarial assistants and agreed to provide laboratory materials and equipment, small-animal rooms and flea-breeding and transmission rooms. Complementary to these laboratory facilities the Department provides facilities for field work, including a mobile laboratory.

There is now complete co-ordination between the field and laboratory and promise of a steady advance, not only in the sphere of plague but in other sylvatic diseases such as yellow fever and typhus. A joint S.A. Institute for Medical Research and Union Health Department expedition to Barotseland at the invitation of the Northern Rhodesia Government has been arranged. The subject of study will be yellow fever and plague.

Research.—Rat-poisoning on the pre-baiting principle was applied on a wide scale : (*a*) in a native reserve (Transkei) and (*b*) on farm premises in the Orange Free State. These experiments have proved conclusively that this system of poisoning gives excellent results. So far baiting has been done in bait containers (P. 3's). Experiments in about 40 native kraals and as many farm buildings have been uniformly successful in killing 90–100 per cent. of the rats in the first operation. The best bait-base has proved to be soaked crushed mealies. Bread mash, vegetable mash, mealie meal porridge ("putu") are suitable alternate bases. Arsenic 10 per cent. by weight of wet bait-base has been used throughout as no other suitable poison has been available.

A year's study of the breeding cycle of gerbils from the Cape and the Transvaal was begun in January, by Dr. Marjorie Allanson and Miss N. V. Lewis of the Zoology Department, University of Cape Town. The broad facts of the reproductive cycle in gerbils were established for the Orange Free State in 1938–39 and for the Transvaal in 1942–43, and attempts had been made to breed gerbils in captivity without very much success. This more detailed study will not only provide a clear picture of the breeding cycle but may also give a clue to the optimum breeding conditions for initiating active breeding in laboratory stocks. The gerbil is a valuable laboratory animal for plague, typhus and other diseases. Wild caught specimens are easily obtained but are subject to a variety of natural diseases, including plague, which is not in their favour for laboratory use.

The first task of the Plague Research Laboratory has been to start collating the vast amount of raw field data on plague ecology collected since 1938. A beginning has been made in mapping the distribution of the 20,000 fleas collected during this period as a preliminary to the production of a Monograph in collaboration with Dr. B. De Meillon, Entomologist to the S.A. Institute for Medical Research.

The Department here records its appreciation of the ready co-operation from the S.A. Institute for Medical Research without which the ecological research projects with regard to plague could not have been carried through. It is gratifiying that this relationship is now firmly cemented by the setting up of the joint Plague Research Laboratory.

The following extract from the Annual Report for the year under review of the Plague Inspector operating in the Cape Province is of interest, giving as it does a detailed account, for only one of several areas in the Union, of

SUID-AFRIKA — PESUITBREKINGS, 1920-1946 — SOUTH AFRICA

PLAGUE OUTBREAKS,

ANGOLA

N.-RHODESIË
N. RHODESIA

CAPRIVISTROOK
CAPRIVI STRIP

OVAMBOLAND

S.-RHODESIË
S. RHODESIA

NGAMIMEER
LAKE NGAMI

S.W.-AFRIKA
S.-W. AFRICA

BETSJOEANALAND-PROTEKTORAAT
BECHUANALAND PROTECTORATE

Steenbokskeerkring

Tropic of Capricorn

PRETORIA

BASOETOLAND
BASUTOLAND

DURBAN

CAPE TOWN
KAAPSTAD

PORT ELIZABETH

Myl 100 50 0 100 200 300 400 Miles

Kilometer 100 50 0 100 200 300 400 500 600 Kilometres

Geteken in die Driehoeksmetingkantoor, Pretoria 1946.
Drawn in the Trigonometrical Survey Office, Pretoria, 1946.

Gedruk in die Unie van Suid-Afrika deur die Staatsdrukker, Pretoria
Printed in the Union of South Africa by the Government Printer, Pretoria

the ceaseless activities whereby the inhabitants of such areas are being so successfully guarded against the dangers of plague.

"During the period under review there have been no cases of human plague in the North Western Cape Province. A very widespread epizootic amongst veld rodents had occurred from north of Clanwilliam throughout the North Western Cape Province, including the Karroo areas to Laingsburg. Although the cause of this epizootic was not proved to be due to plague, there is reason to believe that it might have been a flare up of plague infection in the already endemic areas.

In the beginning of November, 1945, two cases of bubonic plague, both Natives, with one fatal result, occurred at Blue Cliff in the Uitenhage district. Prompt action was taken to suppress the outbreak. Investigations revealed that the outbreak was preceded by mortality amongst rodents in that area.

Over the period under review, increased efforts were made in urging local authorities to take more practical steps to combat the rodent menace, as well as to enforce the rodent-proofing of premises more drastically. In some instances, this has met with good response, but in many cases spasmodic efforts only were made and very much more still remains to be done.

In view of the shortage of the necessary materials such as cement, sheet-iron, and galvanized wire netting of half-inch mesh B.W. gauge 19, the enforcement of the rodent-proofing of buildings is considerably delayed.

A total of 56 (40 urban and 16 rural) inspections were carried out during the year.

Rodent Free Belts.—The belt which is situated between Citrusdal and the coast at Elandsbay is approximately 65 miles long and in width varies from 1 to 4 miles. With the exception of the mountainous stretch over the Grey's Pass mountain, the nature of the country through which the belt runs is chiefly sandy and consists largely of grain lands.

The staff employed comprises one European Rodent Officer and 27 Native and Coloured labourers.

Apart from clearing the belt, attention is also given to the destruction of domestic rodents in farm buildings situated within the rodent-free belt. Much inconvenience and delay with the work has been experienced as a result of the shortage of wheat and oats for the preparation of poisoned grain.

The methods employed are gassing, poisoning and killing. Ingredients used and rodents recovered from the area dealt with during the twelve months ended 30th June, 1946, are :—

Strychnine	153½ ounces.	
Oats and wheat	2,030 pounds.	
Cyanogas dust	710 pounds.	
Rodents recovered from poisoned area		1,183
Rodents killed by hand		9,037
TOTAL		10,220

Table 26 shows the distribution of human plague among the affected districts of the Cape and the Orange Free State for the year under review.

TABLE 26.—DISTRIBUTION OF HUMAN PLAGUE AMONG THE DISTRICTS OF THE TWO AFFECTED PROVINCES DURING THE YEAR ENDED 30TH JUNE, 1946.

	No. of Outbreaks.	Europeans.		Non-Europeans.		Total.	
		Cases.	Deaths	Cases.	Deaths	Cases.	Deaths.
Cape—							
Queenstown	1	—	—	1	1	1	1
Uitenhage	1	—	—	2	1	2	1
	2	—	—	3	2	3	2
Orange Free State—							
Bothaville	1	—	—	1	1	1	1
	1	—	—	1	1	1	1
UNION	3	—	—	4	3	4	3

10. SLEEPING SICKNESS.

The threat of introduction of sleeping sickness from territories adjacent to the Union, particularly Portuguese East Africa, was fully discussed in last year's report. There has been no new developments, but the Department continues to maintain a close watch upon the situation.

11. SMALLPOX.

During the year under review, cases of smallpox were reported over wide areas of the Union. But happily the actual number of cases and deaths from smallpox were very much lower than during the previous year—about one-third as many. The total number of cases for 1945–46 was 1,271 with 60 deaths, as compared with 3,317 with 305 deaths in 1944–45. The comparative case death rates were : 4·7 per cent. in 1945–46 and 9·2 per cent. in 1944–45 a reduction of approximately 50 per cent. Although no accurate record is available of the number of persons successfully vaccinated, the total number of doses of calf lymph issued by the Government Vaccine Institute, Rosebank, Cape, for the year 1945–46, to the four Provinces of Union, amounted to 5,205,028.

The Provincial incidence of smallpox during the year under review is worth noting :—

Province.	1944–45.		1945–46.	
	Cases.	Deaths.	Cases.	Deaths.
Cape	485	6	482	7
Transvaal	502	12	333	17
Natal	2,203	284	412	36
Free State	127	3	44	—
TOTALS	3,317	305	1,271	60

The past year saw the virtual end of the smallpox epidemic which had been prevalent in Natal, since 1942, and which reached its peak in October, 1944. The position, however, has to be constantly watched and local outbreaks may be expected from time to time due to the opposition to vaccination from Native religious sects.

The following figures give the actual incidence in Natal over the past three years :—

1943–44.	1944–45.	1945–46.
578 cases.	2,618 cases.	476 cases.

Smallpox occurred in the undermentioned districts in Natal :—

District.	Cases.	District.	Cases.
Bergville	1	Ixopo	6
Entongeneni		Klip River	7
Underberg		Nqutu	
Lions River		Paulpietersburg	8
Ndwedwe		Babanango	9
Ngotshe		Nkandhla	15
Umgeni	2	Lower Tugela	17
Inanda		Eshowe	19
Kranskop		Durban	23
Nongoma	3	Newcastle	
Umbumbulu	1	Impendhle	27
Alfred	5	Port Shepstone	33
Dundee		Umzinto	98
Vryheid		Utrecht	155

As will be seen, the two districts most heavily infected were Umzinto (98 cases) in the south and Utrecht (155 cases) in the north, and in both areas the victims were practically all of Native religious sects opposed to vaccination.

Cases Smallpox.	Districts 1945–46.	Districts 1944–45.
0.....	17	2
1– 20.....	22	15
21– 40.....	4	7
41– 80.....	0	9
81–100.....	1	3
101–150.....	0	7
151–200.....	1	1
201–250.....	0	1
Total Cases....	476	2,618

Districts Affected : 28/45, 62·2 per cent. ; 43/45, 95·5 per cent.

12. Tuberculosis.

With the end of the War, strenuous efforts were made to put into operation the schemes which of necessity, had had to be held in abeyance during the period of hostilities.

Many difficulties still have to be overcome. Hospitals built for war purposes have been purchased. These include, Springfield Military Hospital and Wentworth Naval Hospital, Durban, Westlake Hospital, Cape Town. Wentworth and Westlake are still unoccupied. Structural alterations are necessary, as the large wards suitable for a military hospital are not suitable for a tuberculosis hospital. A scheme has been proposed for the necessary alterations and money is available.

At Springfield, wards are already available for Non-Europeans. The great difficulty is shortage of nurses. A start has been made to train Native and later Indian girls as nurse aides. These are training in batches of forty and the first two batches are already in service.

Rentzkies Farm has been expanded to accommodate Non-Europeans at the Cape. It is planned to have accommodation for 500 Non-European patients at Rentzkies Farm Hospital. With some three hundred beds for Europeans at Westlake the position at Cape Town should be well in hand. The small hospital for thirty beds at Beaufort West has been completed.

A start has been made for a further 200 beds at Port Elizabeth. As has been stressed in previous reports, the problem of tuberculosis is a most serious one among Non-Europeans. At Durban there are one hundred and fifty beds available at Springfield and as the military authorities give up wards they are handed over to the Health Department for cases of tuberculosis.

The Indian Depot Hospital, Durban, accommodates 104 cases of tuberculosis ; McCord Hospital 50, while many find their way to the King Edward VIII Hospital These cases are transferred as soon as possible to Springfield and if schemes work out according to plan it should be possible in the very near future to accommodate all cases of Non-Europeans in hospitals controlled by the Central Government.

Treatment.—During the past few years there has been a remarkable development in applying all the most modern forms of treatment. At Nelspoort one hundred and thirty cases were treated by artificial pneumothorax, 28 by pneumoperitoneum while 173 surgical procedures were carried out.

The result was that 37 per cent. of the patients were rendered T.B. negative. At King George V Hospital, Durban, similar results were obtained.

In addition to the procedures of artificial pneumothorax, pneumoperitoneum, phrenic crush and internal pneumolysis carried out at both institutions, major surgical procedures are carried out at King George V Hospital, where during the year under review, 20 thoracoplasty operations were carried out on thirteen patients and lobectomy on one patient.

A system of follow-up of patients discharged has been carried out at King George V Hospital. The fate of patients discharged for at least five years was ascertained.

	Number.	Dead.	Not Known.	Known to be Alive.	Per cent. Alive.
					%
European.....	135	59	4	74	55
Coloured.....	56	39	4	13	23
Asiatics.....	63	36	3	24	38

No figures are available for Bantu. It will be readily appreciated how serious the position is among the Non-Europeans, among whom tuberculosis is a major killing disease. Every known method of treatment is being used and every latest discovery in treatment is made full use of. The high proportion of advanced cases militates against the best results.

Cases must be discovered early and the advent of miniature radiography will naturally help in discovering early cases. Miniature X-ray outfits are on order and should be in operation in most of the large centres in the near future.

The position is so serious that an all out drive against tuberculosis must be rigorously pursued. Public interest has been awakened and many voluntary organisations are rendering excellent service.

Mention should be made of the Cape Anti-Tuberculosis Council, The Natal Anti-Tuberculosis Council, the Friends of the Sick Association, Durban, which has established a settlement for Indian tuberculosis patients, and several missionary bodies which are helping the Bantu.

The effects of the war are most noticeable in regard to tuberculosis, as schemes which would have been in full operation years ago are only now beginning to function. Nevertheless, the foundations of the anti-tuberculosis work are sound and it will be possible to expand rapidly in future.

The Central Government together with the Provincial Governments has relieved local authorities of all except 12½ per cent. of the financial responsibility for the treatment of communicable cases of tuberculosis.

Originally, under the Public Health Act, local authorities had to meet 50 per cent.

Tuberculosis is a preventable disease, although at present there is no simple means of preventing it. Probably more can be done by what might be called the indirect methods of good housing and, above all, balanced and adequate feeding, than by the direct method of isolation of infectious persons.

Attention is being directed in countries overseas to the use of prophylactic vaccines such as B.C.G. and Vole Bacillus vaccines and experiments on their use overseas are being carefully followed.

The question has not yet been settled as to whether or not adult tuberculosis is a flare up of an infection acquired in childhood or whether an oxegenous or fresh infection with *tubercle bacillus* is responsible.

If adult tuberculosis is an endogenous infection and if B.C.G. and Vole Bacillus do not acquire virulence then it would appear that a great advance can be made in preventing the development of the disease in its present deadly form.

Various new preparations have been tried—the latest, Streptomycin, is still in the experimental stage. The present cost of production is very high, but whatever the cost, if it is proved of value, it will be added to our growing armamentarium.

The subjoined tables are of interest. Table 27 shews the number of cases of all forms of tuberculosis, and deaths therefrom reported during the year under review, according to age groups. From this table it will be seen there has been an increase in the numbers both of cases (19,773 cases as against 18,099 for 1944–45) and of deaths (7,028 deaths as against 7,004 for 1944–45). Table 28 gives the numbers of admissions, discharges and deaths in the three Government tuberculosis hospitals. Table 29 shews the condition of patients on admission to hospital. Table 30 shews the amount of routine work carried out at the King George V and Nelspoort Tuberculosis Hospitals during the year under review.

Table 27.—Tuberculosis.

Number of Cases and Deaths in Age Groups Reported during the year Ended 30th June, 1946.—By Race and Sex.

	Cases.																						Deaths.																							
	0–9.		10–19.		20–29.		30–39.		40–49.		50–59.		60–69.		70–79.		80–89.		90–99.		100+.		Total.*			0–9.		10–19.		20–29.		30–39.		40–49.		50–59.		60–69.		70–79.		80–89.		90–99.		100+.		Total.*		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	T.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	T.
I.—European.																																															
Pulmonary Tuberculosis	30	18	40	60	146	135	170	93	122	33	87	32	49	15	27	11	4	—	—	1	—	—	675	398	1,073	8	3	4	9	30	27	41	29	48	14	59	21	44	11	18	10	4	1	—	1	—	—	256	126	282
Tuberculosis of the Glands	6	4	3	1	1	3	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13	8	21	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	1	2
Tuberculosis of the Bone	6	5	3	7	6	6	4	4	4	2	3	1	3	—	—	—	—	—	—	—	—	—	29	25	54	3	4	1	1	1	1	2	1	4	2	3	3	4	—	—	—	—	—	—	—	—	—	18	12	30
Tuberculosis Peritonitis	1	1	1	2	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2	5	7	1	—	1	—	—	—	—	—	—	2	—	1	—	—	—	—	—	—	—	—	—	5	—	5
Tuberculosis Meningitis	7	14	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	8	15	23	23	14	—	1	—	3	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	24	20	44
Total	50	42	47	71	153	145	177	97	127	36	90	33	52	15	27	11	4	—	—	1	—	—	727	451	1,178	35	22	6	11	31	31	44	30	54	17	64	24	48	11	18	11	4	1	—	1	—	—	304	159	463
II.—Native.																																															
Pulmonary Tuberculosis	929	895	632	813	1,446	1,213	1,526	1,025	1,393	643	708	281	303	184	94	45	18	6	3	1	—	—	7,052	5,106	12,158	303	295	145	223	406	382	414	279	421	171	199	65	133	41	40	19	8	5	3	—	—	2,072	1,480	3,552
Tuberculosis of the Glands	98	79	25	24	79	29	41	28	21	11	8	5	1	4	2	—	—	—	—	—	—	—	275	180	455	2	2	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	3	3	6
Tuberculosis of the Bone	131	112	73	61	93	42	98	34	79	22	42	15	12	8	6	2	—	—	—	—	—	—	534	296	830	26	41	14	16	52	17	54	11	47	8	14	3	12	1	3	2	1	1	—	—	—	—	223	100	323
Tuberculosis Peritonitis	8	18	10	8	23	18	12	12	11	5	5	1	7	2	1	2	—	—	—	—	—	—	77	66	143	5	6	4	3	14	5	13	—	9	2	6	—	1	1	1	—	—	—	—	—	—	—	53	17	70
Tuberculosis Meningitis	26	23	5	7	13	2	14	4	14	2	2	4	4	—	—	—	—	—	—	—	—	—	88	32	120	32	25	5	2	11	2	16	2	15	1	1	1	1	—	—	—	—	—	—	—	—	—	81	33	114
Total	1,192	1,127	745	913	1,654	1,304	1,691	1,103	1,518	683	765	306	327	198	103	49	18	6	3	1	—	—	8,026	5,680	13,706	368	369	168	244	483	406	497	292	492	182	221	69	147	44	44	21	9	6	3	—	—	2,432	1,633	4,065
III.—Asiatic.																																															
Pulmonary Tuberculosis	58	52	105	80	174	112	66	41	49	17	20	10	15	4	6	2	1	—	—	—	—	—	494	318	812	15	18	29	27	72	62	28	26	28	13	22	3	9	2	2	—	—	—	—	—	—	—	205	151	356
Tuberculosis of the Glands	—	1	4	3	2	1	1	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	8	6	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tuberculosis of the Bone	8	1	8	5	10	1	2	2	2	1	4	1	2	—	1	—	—	—	—	—	—	—	37	11	48	—	—	3	2	4	3	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	6	14
Tuberculosis Peritonitis	3	4	—	3	1	2	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	5	11	16	—	—	—	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	3
Tuberculosis Meningitis	6	7	3	—	1	1	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	12	9	21	1	6	2	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	7	11
Total	75	65	120	91	188	117	71	44	53	20	24	11	18	4	7	2	1	—	—	—	—	—	556	355	911	16	24	34	30	77	65	31	28	28	13	22	3	9	2	2	—	—	—	—	—	—	—	219	165	384
IV.—Coloured.																																															
Pulmonary Tuberculosis	271	279	241	373	428	514	374	304	257	121	149	61	88	45	14	10	2	5	—	1	1	—	1,825	1,712	3,537	161	132	93	117	180	232	187	177	179	77	112	40	68	26	14	4	5	2	1	—	—	1,000	807	1,807
Tuberculosis of the Glands	25	11	7	4	2	2	2	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	37	18	55	2	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	4	6
Tuberculosis of the Bone	63	63	21	21	24	27	10	9	4	4	4	4	3	—	2	2	—	—	—	—	—	—	131	130	261	31	17	6	6	7	7	—	5	8	3	5	1	5	—	—	—	—	—	—	—	—	—	62	39	101
Tuberculosis Peritonitis	13	11	—	4	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14	17	31	7	5	1	2	1	2	1	1	1	1	—	2	—	—	—	—	—	—	—	1	—	—	10	13	23
Tuberculosis Meningitis	42	34	5	5	2	1	—	2	—	1	—	1	—	—	—	—	—	—	—	—	—	—	49	44	93	66	75	12	14	2	4	3	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	84	93	179
Total	414	398	274	407	457	545	386	316	262	127	153	66	91	45	16	12	2	5	—	1	1	—	2,056	1,921	3,977	267	233	112	139	190	245	191	184	188	83	117	41	73	26	14	4	5	2	1	1	—	1,158	958	2,116
V.—Total—All Races.																																															
Pulmonary Tuberculosis	1,288	1,244	1,018	1,326	2,194	1,974	2,136	1,463	1,821	814	964	384	455	248	141	68	25	11	3	3	1	—	10,046	7,535	17,581	487	448	271	376	688	703	570	511	676	275	392	129	254	80	74	33	17	8	4	1	—	3,433	2,564	5,997
Tuberculosis of the Glands	129	95	39	32	84	35	47	28	23	12	8	5	2	4	2	—	—	—	—	—	—	—	334	211	545	4	7	—	—	—	—	—	—	—	—	2	—	—	1	—	—	—	—	—	—	—	6	8	14
Tuberculosis of the Bone	208	181	105	94	133	76	114	49	89	29	53	21	20	8	9	4	—	—	—	—	—	—	731	462	1,193	60	62	24	25	64	28	57	18	59	13	22	7	21	1	3	2	1	1	—	—	—	—	311	157	468
Tuberculosis Peritonitis	25	34	11	17	25	22	12	14	12	7	5	1	7	2	1	2	—	—	—	—	—	—	98	99	197	13	11	6	5	16	7	15	2	11	4	7	—	1	1	1	—	—	1	—	—	—	1	293	156	449
Tuberculosis Meningitis	81	78	13	13	16	4	16	6	15	4	2	5	4	—	—	—	—	—	—	—	—	—	147	110	257	122	120	119	18	13	9	21	3	16	3	1	1	1	—	—	1	—	—	—	—	—	—	70	30	100
Total	1,731	1,632	1,186	1,482	2,452	2,111	2,325	1,560	1,960	866	1,032	416	488	262	153	74	25	11	3	3	1	—	11,356	8,417	19,773	686	648	420	424	781	747	763	434	762	295	424	137	277	83	78	36	18	9	4	2	—	—	4,113	2,915	7,028

* Includes cases of unspecified age.

TABLE 28.—TUBERCULOSIS: HOSPITAL ADMISSIONS, DISCHARGES AND DEATHS, 1945–46.

Hospital.	In Hospital on 1/7/45.	Admissions, 1945–46.	Discharges, 1945–46.	Deaths, 1945–46.	In Hospital, on 30/6/46.	Increase. Decrease.
Rietfontein	48	80	52	32	44	− 4
King George V.	78	172	104	22	124	+ 46
Nelspoort	162	403	366	12	187	+ 25
TOTALS	288	655	522	66	355	+ 67

It will be noted that there is an increase of 67 in the number of patients in hospital at the end of the year as compared with that at its commencement.

TABLE 29.—TUBERCULOSIS: CONDITION OF PATIENTS ON ADMISSION TO HOSPITAL, 1945–46.

Hospital.	Minus Group.		Plus Group.		Total.	Average Stay in Hospital.
		%		%		Days.
Nelspoort	26	6·5	377	93·5	403	154·4
King George V	17	10	141	90	158	155·5
TOTALS	33	8·25	518	91·75	561	155

TABLE 30.—TUBERCULOSIS: ROUTINE HOSPITAL WORK, 1945–46.

Hospital.	Laboratory Investigations.	X-Ray Examinations.	Drugs and Dressings.	Surgical Treatments.	Dental Treatments.
			£ s. d.		
Nelspoort	7,297	1,408	1,241 8 2	398	300
King George V	5,778	4,944	1,537 1 8	1,147	177
TOTALS	13,075	6,352	2,778 9 10	1,545	477

TABLE 31.—KING GEORGE V. HOSPITAL, DURBAN: ADMISSIONS, DISCHARGES AND DEATHS.

RACE.	Patients in Residence at 1/7/45.			Patients Admitted during Year.			Patients Discharged during Year.			Patients Died during Year.			Patients in Residence at 30/6/46.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
European	32	19	51	45	40	85	40	30	70	5	4	9	32	25	57
Coloured	5	5	10	8	8	16	4	7	11	1	1	2	8	5	13
Indian	11	6	17	22	8	30	12	3	15	3	1	4	18	10	28
Native	—	—	—	41	—	41	8	—	8	7	—	7	26	—	26
TOTAL	48	30	78	116	56	172	64	40	104	16	6	22	84	40	124

TABLE 32.—NELSPOORT SANATORIUM: ADMISSIONS, DISCHARGES AND DEATHS.

	Total.	Europeans.			Coloureds.		
		M.	F.	T.	M.	F.	T.
In Sanatorium on 1/7/1945	162	49	45	94	32	36	68
Admitted during year	403	90	135	225	95	83	178
Died during year	12	3	4	7	2	3	5
Discharged during year	366	88	105	193	93	80	173
In Sanatorium on 30/6/1946	187	48	71	119	32	36	68

TABLE 33.—RIETFONTEIN TUBERCULOSIS HOSPITAL: ADMISSIONS, DISCHARGES, DEATHS.

	Europeans.		Coloured.		Natives.		Asiatics.	
	M.	F.	M.	F.	M.	F.	M.	F.
In Hospital, 1/7/1945	—	—	2	3	26	16	1	—
Admitted during year	—	—	5	3	47	22	3	—
Died during year	—	—	—	—	19	11	2	—
Discharged during year	—	—	1	3	33	13	2	—
In Hospital, 30/6/1946	—	—	6	3	21	14	—	—

Table 34 shews the distribution of Tuberculosis cases and deaths for the year under review, according to type, race and province.

Table 34.—Tuberculosis.

Distribution of Cases and Deaths—By Race.

Reported during the Year ended 30th June, 1946.

Province.	Pulmonary Tuberculosis.				Tuberculosis of the Glands.				Tuberculosis of the Bone.				Tuberculosis Peritonitis.				Tuberculosis Meningitis.			
	Number of		Rate per 100,000 of Population.		Number of		Rate per 100,000 of Population.		Number of		Rate per 100,000 of Population.		Number of		Rate per 100,000 of Population.		Number of		Rate per 100,000 of Population.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.*	Cases.	Deaths.	Cases.	Deaths.
I.—European.																				
Cape (excluding Transkei)	585	209	68·64	24·31	7	1	0·81	0·12	34	18	4·07	2·09	6	4	0·70	0·47	13	29	1·51	3·37
Transkei	3	—			—	—			1	—			—	—			—	—		
Natal	198	95	85·01	69·99	1	—	0·43	—	3	1	1·29	0·44	—	—	—	—	1	2	0·43	0·86
Transvaal	288	75	27·74	7·19	13	1	1·25	0·10	19	12	1·82	1·15	1	1	0·10	0·10	10	13	0·96	1·26
Orange Free State	9	4	44·76	1·98	—	—	—	—	1	1	0·50	0·50	—	—	—	—	—	—	—	—
Total	1,083	383	42·81	16·40	21	2	0·90	0·01	58	32	2·48	1·37	7	5	0·30	0·21	24	44	1·03	1·97
II.—Native.																				
Cape (excluding Transkei)	2,943	1,294	246·54	55·80	44	1	9·71	0·04	101	79	11·52	3·39	23	16	1·20	0·69	27	52	1·33	2·23
Transkei	2,794	5			182	—			167	—			5	—			4	—		
Natal	3,268	1,096	191·29	64·51	125	—	7·95	—	288	21	16·97	1·24	56	7	3·30	0·41	40	12	2·36	0·71
Transvaal	2,990	1,081	98·06	35·45	108	1	3·21	0·03	263	274	8·51	7·36	58	44	1·90	1·44	48	51	1·25	1·61
Orange Free State	217	84	32·85	12·71	2	4	0·30	0·61	21	1	3·18	0·15	1	3	0·15	0·46	2	—	0·32	—
Total	12,212	3,560	157·88	46·02	461	6	5·96	0·77	840	325	10·87	4·20	143	70	1·85	0·90	121	115	1·58	1·49
III.—Asiatic.																				
Cape (excluding Transkei)	41	22	254·36	130·17	—	—	—	—	2	—	11·77	—	—	—	—	—	—	2	—	11·83
Transkei	2	—			—	—	—	—	—	—			—	—	—	—	—	—		
Natal	734	314	321·76	137·76	14	—	6·14	—	47	12	20·50	5·69	12	2	5·74	0·88	15	2	6·57	0·88
Transvaal	37	20	98·07	53·62	—	—	—	—	2	2	5·33	5·33	—	1	—	2·63	6	7	1·60	18·66
Orange Free State	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	814	356	288·45	122·46	14	—	4·96	—	51	14	18·05	4·81	12	3	4·11	1·06	21	11	7·43	3·89
IV.—Coloured.																				
Cape (excluding Transkei)	3,304	1,654	408·51	203·77	49	6	6·15	0·74	246	88	30·51	10·82	28	18	3·44	2·21	87	174	10·70	21·50
Transkei	18	4			1	—			—	—			—	—			—	1		
Natal	109	64	442·03	282·89	4	—	17·68	—	4	1	17·69	4·42	1	—	4·42	—	3	1	13·26	4·42
Transvaal	124	85	224·35	153·79	2	—	3·62	—	12	12	21·71	21·71	2	5	3·62	9·05	3	3	5·61	5·61
Orange Free State	8	1	57·28	7·17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	3,563	1,808	393·58	199·77	56	6	6·19	0·67	262	101	28·95	11·16	31	23	3·42	2·54	93	179	10·72	18·18
V.—Total (All Races).																				
Cape (excluding Transkei)	6,873	3,179	241·73	79·12	100	8	7·05	0·20	383	185	13·74	4·65	57	38	1·54	0·95	127	257	3·26	6·42
Transkei	2,817	9			183	—			168	—			5	—			4	1		
Natal	4,309	1,569	197·41	71·88	144	—	6·14	—	342	35	15·67	1·65	69	9	3·26	0·42	59	17	2·70	0·78
Transvaal	3,439	1,261	82·20	31·40	123	2	2·22	0·07	296	250	7·07	5·98	61	46	1·46	1·10	67	74	1·60	1·77
Orange Free State	234	89	26·73	10·16	2	4	0·23	0·46	22	2	2·51	0·23	1	8	0·11	0·91	2	—	0·23	—
Total	17,672	6,107	156·98	54·24	552	14	4·90	0·12	1,211	472	10·76	4·19	193	101	1·71	0·90	259	349	2·30	3·10

* The fact that in some instances more deaths have been notified than cases is to be explained by the incompleteness of the returns submitted.

13. Typhoid or Enteric Fever.

This disease continues to take its high toll of health and life. For the year ended 30th June, 1946, there was notified a total of 6,032 cases for all races as compared with a total of 3,470 cases for the previous year.

Typhoid fever is an index of the state of sanitation in a community and serves as a yardstick whereby the efficiency and the adequacy of its health services may be measured. The smaller urban areas and the rural areas, which are poorly served in regard to health services, are mainly responsible for the unsatisfactory incidence of this disease.

" Filthy fingers, filthy flies and filthy food " are the vehicles whereby the infection is carried. The source of the disease is a case or a " carrier ". Lack of hygienic handling of food may expose it to contamination by " carriers " or by flies. Milk is a common vehicle for the spread of this and other diseases.

The need, therefore, of scrupulous cleanliness in the production and the distribution of milk cannot be over-emphasized. This standard is more honoured in the breach than the observance in many dairies in the rural areas and in the smaller urban local authority areas. Stables and milk rooms are structurally deficient and are poorly equipped in the way of a reticulated water supply, gauzing and manure disposal facilities.

Dairy workers who are permanent or temporary " carriers ", particularly of typhoid fever, should be rigorously excluded from the handling of milk. Much can be done by the regular testing of such workers for the " carrier " state. This applies with particular force to non-Europeans amongst whom owing to the insanitary environment in which they live, a high typhoid incidence is prevalent. Owing, however, to the many practical difficulties experienced in carrying out the tests, it should be borne in mind that such testing, while a valuable measure, cannot be solely depended on to produce safe milk. Many other countries have, therefore, increasingly resorted to pasteurization as a final safeguard and the resultant effect on the incidence of milk-borne disease has fully justified this step.

Another important vehicle of infection, particularly in the rural areas, is polluted water supplies. As far as the rural Native is concerned he obtains his domestic drinking water as a rule from streams, dongas, and shallow springs. These sources are, of course, exposed to pollution on every hand. The concentration of pollution is increased in times of drought when natural flushing fails. This has been repeatedly evidenced especially where water is obtained from shallow springs. Until steps are taken by farmers to provide their Native employees with a safe water supply the annual crop of cases will recur.

Flies are a further important vehicle for the spread of tyhpoid fever and several other serious diseases. The common practice of keeping cattle in urban areas with the resultant dung nuisances encourages fly-breeding. It cannot be too strongly stressed that the keeping of cattle in an urban area is opposed to civilized standards of health and is productive of much avoidable disease. A solution of the problem is the provision of communal stables outside the town, for which a small rental could be charged, and where cattle could be segregated. By this means the urban area would be freed of the insanitary nuisances of faulty dung disposal and consequently of fly-breeding and fly-borne disease. D.D.T. has proved a useful weapon against flies and should be widely used.

The poor state of housing and sanitation in overcrowded Native locations is also productive of many outbreaks of typhoid fever. With a high " carrier " rate amongst the non-European population it inevitably gives rise to serious outbreaks during the warm months when fly-breeding is at its height. The tendency on the part of many local authorities to " ration " their Native locations in regard to sanitary services and water must be deplored and until these basic requisites are supplied there is little hope for improvement in the position.

It is essential to prevent spread of the disease when an outbreak occurs, and hence to act promptly in segregating the cases and in immunizing the population at risk. This is a potent weapon in stamping out an epidemic or threatened epidemic and it will not only limit the spread but also reduce the " carrier " rate by reducing the number of cases.

It need hardly be added that every effort should be made by the local authority to trace the source of outbreaks, in order to prevent recurrence from the same source. In this connection milk and water supplies, sanitary services and fly-breeding should come under review and prompt measures should be taken to remedy deficiencies.

It should be noted that in terms of section 8 of Act No. 51 of 1946, the whole of the approved net cost actually and necessarily incurred by a local authority in respect of material for immunizing any person in its area of jurisdiction against enteric fever will be refunded by this Department which may also supply such material free of cost. It is trusted that full use will be made of this assistance in the future.

During November and December 1945 there was an extensive outbreak of typhoid fever in Brakpan, involving some 300 cases of whom the great majority were Europeans. The disease was traced to milk supplied by a large distributing depot and there is little doubt that the principal source of infection was a Native milker working at one of the several dairy farms supplying this depot. This milker was found to be suffering from typhoid fever. The distributing depot supplied milk to a school, as well as to a large number of households, and a very large proportion of the children in this school were affected.

The epidemic was of an explosive nature, as is always the case in milk-borne outbreaks, and all available hospital accommodation was soon taken up. The town hall was rapidly converted into an emergency hospital, which was staffed and equipped by the Department of Defence, while other suitable measures were taken by the municipality to control the epidemic.

A committee was appointed by the Honourable the Minister of Health to investigate the outbreak and also to make recommendations with the object of preventing similar outbreaks in the future. This committee made a number of recommendations regarding the better hygienic control of dairying and the safety of milk supplies, including among others the more careful control of dairy workers and the pasteurization of milk for human consumption in all areas where this is practicable. The committee emphasised the fact that until such time as milk supplies were much better controlled, and particularly pasteurized, outbreaks of this nature would inevitably continue to occur. This point of view has been amply substantiated by the fact that a number of smaller milk-borne outbreaks have since occurred.

The question of the pasteurization of milk has given rise to considerable controversy. If the matter is considered from the purely technical point of view, there is no doubt whatever that, despite all that can be done to improve dairy hygiene and safeguard milk from contamination, the only adequate and practicable method of protecting the community from outbreaks of milk-borne disease is efficient pasteurization of all milk used for human consumption. It is clear, however, that the matter is largely bound up with commercial considerations which must be taken into account. There is, unfortunately, still a considerable body of public opinion that is either indifferent or actively opposed to the introduction of pasteurization on a large scale. Until such time as this attitude has been overcome, and a greater proportion of the public has come to appreciate the need for pasteurization, it will not be possible to ensure that it is carried out sufficiently generally to safeguard the public health from milk-borne disease. There is a great need for a more enlightened public opinion on this subject so that commercial practice may more nearly approach to scientific knowledge.

Table 35.—Typhoid or Enteric Fever.

Distribution of Cases and Deaths.

Race and Area—Reported during the Year ended 30th June, 1946.

Province.	Cases.				Deaths.			
	Urban.	Rural.	Total.	Incidence Rate per 100,000 of Population.	Urban.	Rural.	Total.	Death Rate per 100,000 of Population.
I.—European.								
Cape (excluding Transkei)	142	58	200	23·03	13	1	14	1·63
Transkei	6	2	8		—	—	—	
Natal	87	20	107	45·94	4	2	6	2·58
Transvaal	598	128	726	69·68	22	7	29	2·78
Orange Free State	125	31	156	77·07	6	2	8	3·98
Total	958	239	1,197	51·25	45	12	57	2·45
II.—Native.								
Cape (excluding Transkei)	217	261	478	34·46	34	5	39	3·68
Transkei	80	244	324		—	—	—	
Natal	410	688	1,098	64·62	83	69	152	8·95
Transvaal	853	601	1,454	37·85	151	38	195	6·40
Orange Free State	308	416	724	109·26	11	10	21	3·18
Total	1,868	2,210	4,078	52·76	285	122	407	5·13
III.—Asiatic.								
Cape (excluding Transkei)	3	6	9	59·11	—	—	—	—
Transkei	—	1	1		—	—	—	—
Natal	105	159	264	11·57	14	4	18	7·85
Transvaal	20	4	24	63·99	1	—	1	2·67
Orange Free State	—	—	—	—	—	—	—	—
Total	128	170	298	10·55	15	4	19	6·72
IV.—Coloured.								
Cape (excluding Transkei)	216	137	353	84·45	35	9	44	5·41
Transkei	19	22	41		—	—	—	
Natal	17	6	23	101·66	1	—	1	4·42
Transvaal	28	8	36	65·12	3	4	7	12·48
Orange Free State	6	—	6	42·96	—	—	—	—
Total	286	173	459	50·83	39	13	52	5·75
V.—Total (All Races).								
Cape (excluding Transkei)	518	462	1,045	34·46	82	15	97	2·45
Transkei	105	269	374		—	—	—	
Natal	619	873	1,492	68·35	102	75	177	8·19
Transvaal	1,499	741	2,240	53·54	173	49	232	5·55
Orange Free State	439	447	886	10·12	17	12	29	3·31
Total	3,240	2,792	6,032	53·58	124	151	535	4·80

TABLE 36.—TYPHOID OR ENTERIC FEVER: NOTIFICATIONS AND INCIDENCE IN URBAN LOCAL AUTHORITY AREAS IN WHICH TEN OR MORE CASES WERE NOTIFIED DURING THE YEAR ENDED 30TH JUNE 1946 (EXCLUDING CASES RETURNED AS "IMPORTED".)

LOCAL AUTHORITY.	Notifications.					Incidence Rate per 1,000 of Population.				
	European.	Native.	Asiatic.	Coloured.	Total.	European.	Native.	Asiatic.	Coloured.	Total.
Umtata Municipality	3	65	—	13	81	1·13	16·50	—	17·77	11·60
Warden Municipality	1	33	—	—	34	0·99	33·88	—	—	11·54
Prieska Municipality	4	—	—	26	30	3·06	—	—	18·59	8·68
Hercules Municipality	20	69	—	1	90	1·38	4·76	—	1·86	7·08
Reitz Municipality	5	23	—	—	28	3·68	9·65	—	—	7·06
Parys Municipality	19	21	—	—	40	5·76	8·37	—	—	6·20
Lindley Municipality	3	10	—	—	13	2·81	8·89	—	—	5·78
Utrecht Municipality	1	13	2	2	18	1·37	4·55	133·33	11·92	4·77
Ficksburg Municipality	14	16	—	—	30	4·95	4·57	—	—	4·60
Vrede Municipality	—	19	—	—	19	—	7·71	—	—	4·59
Heidelberg Municipality	10	21	—	—	31	3·84	5·12	—	—	4·36
Newcastle Municipality	3	31	7	1	42	1·30	5·47	4·14	6·10	4·36
Kroonstad Municipality	21	67	—	1	89	2·75	3·25	—	1·60	4·23
Brakpan Municipality	305	18	—	—	323	1·08	0·32	—	—	3·88
Matatiele Municipality	—	10	—	—	10	—	7·18	—	—	3·72
Fort Beaufort Municipality	2	19	—	8	29	1·38	3·78	—	6·52	3·63
Stutterheim Municipality	11	12	—	—	23	5·60	2·79	—	—	3·55
Glencoe Municipality	4	1	6	1	12	2·84	0·62	11·95	13·51	3·34
Bethulie Municipality	5	5	—	—	10	3·42	3·54	—	—	3·16
Harrismith Municipality	12	17	—	—	29	3·45	2·48	—	—	2·79
Heilbron Municipality	4	6	—	1	11	2·46	2·35	—	6·37	2·53
Uitenhage Municipality	3	23	—	9	35	0·27	24·67	—	4·54	2·45
Volksrust Municipality	2	11	—	—	13	0·60	4·54	—	—	2·20
Pietermaritzburg Municipality	8	38	20	3	69	0·92	4·64	2·33	1·61	2·16
Standerton Municipality	5	5	—	—	10	1·16	1·15	—	—	1·78
Cradock Municipality	—	21	—	1	22	—	3·83	—	0·34	1·66
Queenstown Municipality	13	22	—	4	39	1·60	1·67	—	1·87	1·66
Aliwal North Municipality	1	11	—	1	13	0·38	2·25	—	0·88	1·49
Vereeniging Municipality	5	60	1	—	66	0·36	2·04	1·77	—	1·47
Vryheid Municipality	8	3	—	—	11	2·11	0·77	—	—	1·38
Ermelo Municipality	2	8	—	—	10	0·60	2·01	—	—	1·32
Upington Municipality	6	2	—	3	11	1·79	1·00	—	0·65	1·09
Ladysmith Municipality	6	9	—	—	15	1·20	1·65	—	—	1·07
Boksburg Municipality	26	15	10	2	53	1·22	0·48	12·12	1·76	0·99
Germiston Municipality	20	74	—	—	94	0·53	1·17	—	—	0·91
Benoni Municipality	12	46	3	—	61	0·48	1·00	2·51	—	0·84
Paarl Municipality	10	2	—	9	21	0·93	0·75	—	0·67	0·77
Cape Town Municipality	24	14	1	98	137	0·23	1·08	0·17	1·01	0·66
Nigel Municipality	3	11	—	—	14	0·50	0·68	—	—	0·62
Durban Municipality	24	127	43	6	200	0·21	1·12	0·40	0·59	0 59
Roodepoort Municipality	9	23	—	1	33	0·40	0·48	—	0·87	0·57
Johannesburg Municipality	87	206	4	13	310	0·27	0·70	0·25	0·56	0·47
Krugersdorp Municipality	2	28	—	—	30	0·09	0·63	—	—	0·42
Bloemfontein Municipality	15	12	—	—	27	0·50	0·34	—	—	0·40
East London Municipality	13	12	1	2	28	0·34	0·39	0·81	0·40	0·37
Springs Municipality	6	34	—	—	40	0·24	0·40	—	—	0·36
Kimberley Municipality	2	8	—	3	13	0·11	0·33	—	0·31	0·25
Pretoria Municipality	22	11	—	—	33	0·12	0·20	—	—	0·20

14. TYPHUS.

The incidence of typhus for the year under review shewed a very appreciable and gratifying decrease over the previous year, namely, some 778 cases with 36 deaths as against 2,909 cases with 566 deaths. The disease would appear also to have been less severe, as the case death rate for 1945–46 was 4·6 per cent. as against 12·6 per cent. for 1944–45. Of the cases recorded, 69·2 per cent. occurred in the Cape (Transkei and Ciskei chiefly), 20 per cent in Natal, 8·5 per cent. in the Transvaal and 2·3 per cent. in the Orange Free State. The Department is hopeful that, with the extended use of D.D.T. and the breaking of the prolonged drought, with the consequent prospect of more food becoming available to the Bantu, the incidence of this dread disease may be still further reduced during the ensuing year. The scarcity of soap is still a matter for grave concern, as under present conditions washing of bodies and clothes and blankets etc., by the Bantu is reduced below the safety margin of personal cleanliness essential to good health.

The position in the several Provinces is summarised in Tables 37 and 38.

TABLE 37.—TYPHUS, 1945–46: MONTHLY INCIDENCE ACCORDING TO PROVINCES.

PROVINCE.	July.		August.		September.		October.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape	53	4	76	5	86	—	61	2
Natal	7	—	8	—	6	—	19	—
Transvaal	5	—	1	—	5	—	18	4
Free State	—	—	8	—	4	—	4	—
TOTALS	65	4	93	5	101	—	102	

TABLE 37—(*continued*)

PROVINCE.	November.		December.		January.		February.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape	56	—	23	7	21	1	35	1
Natal	19	2	26	1	21	—	2	1
Transvaal	18	4	10	—	10	1	2	—
Free State	—	—	—	—	—	—	—	—
TOTALS	93	6	59	8	52	2	39	2

PROVINCE.	March.		April.		May.		June.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape	31	—	28	—	19	1	50	—
Natal	13	3	21	2	4	—	9	—
Transvaal	1	—	7	—	1	—	—	—
Free State	1	—	—	—	1	1	—	—
TOTALS	46	3	56	2	25	2	59	—

TABLE 38.—TYPHUS: YEARLY INCIDENCE.

Province.	Cases.	Per cent.	Deaths.	Case Death Rate.
				%
Cape	539	69·2	21	3·9
Natal	155	20·0	9	5·8
Transvaal	66	8·5	5	7·6
Free State	18	2·3	1	5·5
TOTALS	778	100·0	36	4·6

15. VENEREAL DISEASES.

The incidence of these diseases varies from district to district. On the whole there would appear to be an upward trend in the case of syphilis, but the incidence of gonorrhoea is low.

The average number of attendances by a syphilitic Non-European patient at treatment centres is 7. This is unsatisfactory, and attention has been drawn to this in previous reports. It is thus evident that if the time and money expended in the running of these rural clinics is not to be wasted, then either the relevant provisions of the Public Health Act should be invoked to enforce better attendances, or some form of follow-up system should be instituted. It has been shewn that Native Health Assistants in the normal course of their duties can do much to persuade defaulting patients to attend more regularly and to encourage others to present themselves for treatment.

Much of the infection among Natives is undoubtedly acquired in urbanised areas. The card system which is being more extensively used in rural areas should be adopted in urban areas also, so that a patient who has attended a clinic in a town may continue the same type or course of treament immediately on returning to his rural domicile.

The upward trend of attendances at venereal diseases clinics and treatment centres continues, and it is gratifying to know that there is this response to the increased facilities now being made available.

Drugs for the free treatment of venereal diseases are issued by the Department to district surgeons, local authorities with approved schemes and accredited hospitals. Many brands of arsenicals have been in short supply and difficult to obtain, necessitating the substitution of whatever might be available at the time. Fortunately the position in this respect is improving. Sulpha-drugs of their own choice are now supplied freely to district surgeons and medical officers to local authority V.D. Clinics. Penicillin has been used at the Department's Hospital at Rietfontein for the treatment of specially selected cases, for example, sulpha-drug resistant cases of gonorrhoea. Arrangements are being made to give free issues of penicillin for use in venereal disease infections to those local authorities which employ whole-time venereologists. Tables 39, 40 and 41 give details of the numbers of patients treated.

The warning given last year must again be stressed. With new and improved methods of treatment of venereal diseases there is a danger that both the public and the medical profession may be lulled into complacency. There must be no relaxation whatever in the attack upon every aspect of this vast medico-sociological problem.

TABLE 39.—VENEREAL DISEASES: OUTDOOR ATTENDANCES AT CLINICS AND TREATMENT CENTRES DURING EACH OF THE YEARS 1935 TO 1946.

	Syphilis.		Gonorrhoea.	
	European.	Non-European.	European.	Non-European.
1935	17,828	72,256	20,851	16,500
1936	17,539	62,783	21,815	19,789
1937	23,174	78,948	29,066	25,814
1938	24,681	97,963	34,018	27,086
1939	27,938	145,167	32,402	24,789
1940	33,955	177,848	20,777	29,088
1941	29,988	166,623	9,719	37,519
1942	31,966	198,004	13,076	38,731
1943	33,672	223,242	12,598	30,269
1944	22,088	237,751	7,337	41,617
1945	24,192	238,703	9,387	35,514
1946	29,079	289,885	9,003	21,791

TABLE 40.—VENEREAL DISEASES: CASES TREATED IN HOSPITAL DURING EACH YEAR 1935 TO 1946.

	Syphilis.		Gonorrhoea.	
	European.	Non-European.	European.	Non-European.
1935	185	6,819	400	1,250
1936	187	7,216	368	1,376
1937	252	8,342	422	1,597
1938	255	9,210	492	1,939
1939	248	10,331	311	2,546
1940	228	12,020	228	3,211
1941	249	12,951	325	6,525
1942	274	11,998	440	6,488
1943	307	11,855	421	6,068
1944	119	12,550	119	5,812
1945	120	13,125	188	4,989
1946	122	13,404	178	5,241

TABLE 41.—VENEREAL DISEASES. CASES TREATED AND ATTENDANCES, YEAR ENDED 30TH JUNE, 1946.

LOCALITY.	CASES TREATED IN HOSPITAL.						ATTENDANCES AT CLINICS AND TREATMENT CENTRES.					
	Syphilis.		Gonorrhoea and Other Venereal Diseases.		Total.		Syphilis.		Gonorrhoea and Other Venereal Diseases.		Total.	
	E.	N-E.	E.	N-E.	E.	N-E.	E.	N-E.	E.	N-E.	E.	N-E.
By Government and Local Authority Medical Officers.												
Alexandra	—	—	—	—	—	—	—	5,514	—	18	—	5,532
Adelaide	—	—	—	—	—	—	—	186	—	—	—	186
Aliwal North	—	—	—	—	—	—	—	306	—	6	—	312
Barberton	—	859	—	—	—	859	—	—	—	—	—	—
Beaufort West	—	—	—	—	—	—	—	185	—	—	—	185
Benoni	—	—	—	—	—	—	166	5,086	2	82	168	5,168
Bethlehem	—	45	—	13	—	58	—	653	—	—	—	653
Bethulie	—	271	—	74	—	345	—	—	—	—	—	—
Bloemfontein	10	210	7	23	17	233	277	8,165	—	—	277	8,165
Bochem	—	543	—	11	—	554	—	951	—	—	—	951
Boksburg	—	—	—	—	—	—	582	7,138	29	12	611	7,150
Brakpan	—	—	—	—	—	—	22	1,008	—	7	22	1,015
Cape Town	41	220	44	49	85	269	6,892	57,954	2,753	11,287	9,645	69,241
Cape Divisional Council	—	—	—	—	—	—	407	7,882	18	303	425	8,185
Colesberg	—	—	—	—	—	—	—	564	—	—	—	564
*Darling	—	—	—	—	—	—	—	—	—	—	—	—
De Aar	—	—	—	—	—	—	—	409	—	23	—	432
Durban	—	342	—	153	—	495	—	6,329	—	3,973	—	10,302
Durban (Addington)	39	11	101	45	140	59	6,449	—	2,008	—	8,457	—
East London	—	—	—	—	—	—	382	11,179	40	173	422	11,352
Elim	—	425	—	42	—	467	—	—	—	—	—	—
Ficksburg	—	—	—	—	—	—	—	443	—	—	—	443
*Fraserburg	—	—	—	—	—	—	—	—	—	—	—	—
Germiston	—	—	—	—	—	—	699	6,691	709	60	1,468	6,751
*Gordons Bay	—	—	—	—	—	—	—	—	—	—	—	—
*Hanover	—	—	—	—	—	—	—	—	—	—	—	—
*Heilbron	—	—	—	—	—	—	—	—	—	—	—	—
Hereules	—	—	—	—	—	—	—	5,353	—	52	—	5,405
Jansenville	—	—	—	—	—	—	—	752	—	—	—	752
Johannesburg	—	—	—	—	—	—	6,358	56,279	2,352	302	8,710	56,581
*Kenhardt	—	—	—	—	—	—	—	—	—	—	—	—
Kimberley	—	51	—	39	—	90	105	19,629	1	540	106	20,169
King Edward VIII (Durban)	—	3,662	—	1,937	—	5,599	—	—	—	—	—	—
Kingwilliamstown	—	40	—	7	—	47	26	384	—	—	26	384
*Kokstad	—	—	—	—	—	—	—	—	—	—	—	—
Kroonstad	—	82	—	—	—	82	—	—	—	—	—	—
Krugersdorp	—	—	—	—	—	—	—	1,870	—	6	—	1,876
Kuruman	—	15	—	—	—	15	—	306	—	1	—	307
Liehtenburg	—	—	—	—	—	—	—	29	—	—	—	29
Molteno	—	—	—	—	—	—	—	2,950	—	—	—	2,950
Mossel Bay	—	—	—	—	—	—	15	55	—	—	15	55
Nelspruit	—	—	—	—	—	—	—	2,146	—	—	—	2,146
*Newcastle	—	—	—	—	—	—	—	—	—	—	—	—
*Olifantshoek	—	—	—	—	—	—	—	—	—	—	—	—
Oudtshoorn	—	—	—	—	—	—	1,069	3,228	—	—	1,069	3,228
Paarl	—	—	—	—	—	—	25	420	1	—	26	420
Paarl Divisional Council	—	—	—	—	—	—	—	1,108	—	—	—	1,108
Pietermaritzburg	—	1,249	—	565	—	1,814	—	—	—	—	—	—
Pietersburg	—	—	—	—	—	—	—	359	—	—	—	359
Piet Retief	—	117	—	65	—	182	—	62	—	19	—	81
Port Elizabeth	—	—	—	—	—	—	1,224	13,939	223	1,254	1,447	15,193
*Port Shepstone	—	—	—	—	—	—	—	—	—	—	—	—
*Potchefstroom	—	—	—	—	—	—	—	—	—	—	—	—
Pretoria	—	—	—	—	—	—	3,848	27,001	766	3,080	4,614	30,180
Rietfontein	32	4,942	26	2,204	58	7,146	—	—	—	—	—	—
Randfontein	—	—	—	—	—	—	—	1,281	—	—	—	1,281
Rustenburg	—	—	—	—	—	—	—	3,421	—	—	—	3,421
Sekukuniland	—	158	—	5	—	163	—	223	—	—	—	223
*Senekal	—	—	—	—	—	—	—	—	—	—	—	—
Springs	—	—	—	—	—	—	389	9,421	82	311	471	9,732
*Stanger	—	—	—	—	—	—	—	—	—	—	—	—
Standerton	—	—	—	—	—	—	—	58	—	—	—	58
Stellenbosch	—	—	—	—	—	—	—	560	—	—	—	560
Stellenbosch Div. Coun.	—	—	—	—	—	—	5	729	—	—	5	729
Sterkstroom	—	—	—	—	—	—	—	1,013	—	—	—	1,013
Steynsburg	—	—	—	—	—	—	—	866	—	—	—	866
*Swellendam	—	—	—	—	—	—	—	—	—	—	—	—
*Tulbagh	—	—	—	—	—	—	—	—	—	—	—	—
Uitenhage	—	37	—	9	—	46	—	4,825	—	44	—	4,869
Umtata	—	—	—	—	—	—	—	94	—	—	—	94
Vereeniging	—	—	—	—	—	—	139	10,150	19	238	158	10,388
Vryburg	—	122	—	—	—	122	—	—	—	—	—	—
Wellington	—	—	—	—	—	—	—	98	—	—	—	98
Winburg	—	—	—	—	—	—	—	259	—	—	—	259
Zeerust	—	—	—	—	—	—	—	374	—	—	—	374
TOTAL	122	13,404	178	5,241	309	18,645	29,079	289,885	9,003	21,791	38,082	311,676

* No returns submitted.

16. Yellow Fever.

The possibility that yellow fever may be introduced into the Union is by no means remote. Recent investigations suggest that the disease has occurred nearer to our northern borders than was previously suspected. Investigations into the epidemiology of yellow fever are still being actively prosecuted.

During November, 1945, a Yellow Fever Conference was held in Pretoria. This was attended by representatives from neighbouring territories. Dr. A. F. Mahaffy, Director of the Yellow Fever Research Institute, Entebbe, was invited to attend, so that those present might have the benefit of his advice on the present location and possible spread of this disease, and on the best means of combating this menace to South Africa. After the conference had been opened by the Minister of Health, Dr. Mahaffy described the investigations that had been carried out on the African continent on the epidemiology of yellow fever. He stated that the control measures adopted in endemic areas were, inoculation of persons and control of the domestic vector mosquito.

Aedes aegypti.—Mouse protection tests (revealing immunity to yellow fever consequent upon recovery from an attack of the disease) on human blood in Africa have shewn that the area in which the disease occurs is roughly a broad band across central Africa. The northern boundary runs approximately from 50° N. of the west coast, along the southern border of the Sahara to the Sudan. The eastern boundary is not exactly defined, but positive tests have been obtained from human blood in Eritrea near Masawa. The recognised southern limit, at present, stretches from a point south of the mouth of the Congo River, to the south-west corner of Lake Victoria, but it is suspected that infection may extend to the shores of the Indian Ocean. Investigations carried out recently revealed that a proportion of blood specimens collected from Natives in Barotseland gave a positive mouse protection test. Immunity surveys were made during 1945 in Bechuanaland ; there a proportion of blood specimens collected from Natives also gave positive mouse protection tests. Pending further investigation, it must be accepted that yellow fever has occurred in northern Bechuanaland, particularly in the Ngamiland and Chobe areas.

The significance to the Union of South Africa of these recent findings, lies in the fact that Natives from Northern Bechuanaland and from Barotseland are recruited for work in the gold mines. Owing to climatic conditions, not all areas in South Africa are regarded as vulnerable to an epidemic of yellow fever. Further, the distribution of vector mosquitoes in the Union is not completely known. A brief survey of the vector position made by Dr. B. de Meillon of the South African Institute for Medical Research during December, 1945 in the vicinity of the proposed new sanitary aerodrome near Durban in Natal, disclosed the presence of three known vectors of the disease ; specimens of two of the most important vectors, *Aedes aegypti* and *Aedes simpsoni*, were obtained without difficulty. Climatic conditions in this area are considered favourable for the spread of yellow fever and monkeys, which are susceptible to yellow fever and act as reservoirs for the virus, are plentiful. Vector mosquitoes are known to breed in the Transvaal, north of Pretoria, and have been found in other parts of the Union.

To guard against the introduction of yellow fever into the Union it is necessary for the Health Department to ensure that :—

(1) No person in the infective stage of the disease enters the Union.

(2) Live infective mosquitoes are not introduced into the Union, particularly by rapidly travelling aircraft.

(3) The breeding of possible vector mosquitoes, particularly in the vicinity of airports and harbours, is controlled.

As a precaution against spread of yellow fever, the international sanitary convention relating to air travel requires that all passengers intending to enter or to pass through a recognised endemic yellow fever area, should receive an injection of yellow fever vaccine ten days prior to their arrival in such area so as to ensure, as far as possible, that they are immune to the disease and thus limit the possibility that the virus might be conveyed to vector mosquitoes in non-endemic areas by human agency.

During the war, when civilian travelling was limited, the Union Department of Defence undertook the responsibility of giving yellow fever inoculations to travellers, for the most part service personnel, leaving the Union. After the close of hostilities, when civilians, of whom Indians formed a large proportion, began to come forward in increasing numbers for inoculation, the Union Health Department took over this duty from the Department of Defence. Officers of the Health Department, stationed in the larger towns, now hold regular clinics at which the public may receive, without charge, an inoculation of yellow fever vaccine. An international certificate, recognised by UNRRA, and which is at present valid for four years, is issued to each person so inoculated.

At sanitary airports in the Union, measures are taken to ensure that aircraft arriving from recognised endemic yellow fever areas are disinfested prior to unloading. Quarantine accommodation is provided at airports and harbours and passengers' yellow fever certificates are scrutinised.

The Union Health Department's Yellow Fever Laboratory at Rietfontein, run in association with the South African Institute for Medical Research, manufactures yellow fever vaccine for use in Africa. This laboratory is also recognised internationally for the carrying out of yellow fever immunity tests. By agreement, half a million doses of the vaccine are kept in reserve for use should an emergency arise.

Requests from intending travellers, for supplies of yellow fever vaccine are at times received. Some find it inconvenient to travel to the nearest centres where yellow fever inoculations are given, others find the hours at which inoculations are given inconvenient. Unfortunately, it is not possible to accede to such requests, and allow such injections to be given by private practitioners. Yellow fever vaccine, for technical reasons, is not packed in single doses, but in bulk. The dried vaccine must be kept at all times at a low temperature. Immediately prior to use, the dried vaccine is mixed with saline, and once mixed it must be used within three hours, or be destroyed. Further, the certificate issued after inoculation is not acceptable internationally unless the inoculation has been made at a recognised centre, by a medical officer appointed for that purpose.

VI.—GENERAL.

1. Nutrition.

The National Nutrition Council and its standing committees met regularly during the past year. Their activities during the period in question can be divided into two main categories, namely (*a*) the investigation of conditions of acute malnutrition and consideration of the measures necessary to provide immediate relief, and (*b*) the planning of a long-term policy designed to bring about a general improvement in the diet of the inhabitants of the Union.

Due to widespread crop failures, more particularly the maize crop, the prevailing food shortage has affected the Native population to a greater extent than other sections of the community. Relief measures were therefore directed mainly towards supplementing the diet of Natives in the drought-stricken areas. The Nutrition Officer co-operated with officials of the Department of Native Affairs in investigating conditions in the Native territories and introducing mass feeding schemes where necessary. In this connection particular attention was paid to the needs of nursing women and pre-school children.

Under the category of long-term planning the Council concerned itself with diverse matters designed to raise the nutritional standard of the population. Among these may be cited the following :—

(i) The reorientation of the nutritional organisation in the Union in the light of experience gained in the past. The discussions in this connection embraced the reorganisation of the Council and its committees, the improvement of the administrative machinery and the introducing of measures designed to facilitate the carrying out of the Council's nutritional research programme.

(ii) The preparation of programmes for both laboratory and field research on nutritional problems. The question of nutrition research particularly figured very prominently in the Council's discussions during the past year.

(iii) The inauguration of an extensive nutritional educative and publicity programme, involving, *inter alia*, the expenditure of approximately £14,000 per annum, on the printing of booklets, pamphlets, folders and posters for distribution to the public, schools, welfare organisations and other interested bodies. The revision of the domestic science and hygiene syllabuses in schools and training colleges with a view to the introduction of more up to date methods of teaching nutrition has been entrusted to a special sub-committee consisting of educationalists assisted by one of the Assistant Professional Officers (Dietetics).

(iv) Food production and distribution in relation to the nutritional requirements of the population. In this connection there has been close contact between the Council, the Department of Agriculture and other organisations concerned with the production and distribution or agricultural products and other foodstuffs. The Council has discussed and made recommendations in regard to the rationing system for products in short supply. An expert sub-committee has been appointed to advise the Director of Food Supplies on the nutritional aspects of the rationing scheme which is being introduced under his direction.

In the field of nutritional research on a wide scale, special mention may be made of food yeast. On the recommendation of the Council, the Government sponsored the manufacture in the Union of food yeast, a product rich in vitamins of the B. group and containing a high percentage of first class protein. The result is that food yeast is now being manufactured in the Union on a semi-commercial basis at a factory in Durban, established under the aegis of the Industrial Development Corporation with the object of determining the practicability of the eventual manufacture in this country of food yeast on a commercial scale at a low price.

The current output of the factory is approximately 4 tons per month, and the Government has agreed to purchase at 2s. per lb. the initial 50 tons produced on a semi-commercial basis. The expenditure involved, amounting to £10,000 is being met in equal proportions by the Department of Commerce and Industries and the Department of Health.

The 50 tons of food yeast in question is being used, as supplies become available, for carrying out wide-spread experiments in laboratories, hospitals, clinics, health centres and similar institutions and in various schemes where the actual feeding of sections of the population has to be undertaken. A considerable proportion of the food yeast purchased is being earmarked for incorporating in mealie meal and flour, with a view to determining the technicalities of the admixture of food yeast in bulk with those products and carrying out large-scale nutritional experiments with the mixtures. Such experiments are essential before a final determination can be made of practicable large-scale methods for the utilisation of food yeast in the fight against malnutrition in the Union.

In the field of propaganda and organisation, designed to bring about improvement in the nutritional standards of a large group of people, a short summary, in tabular form, of the results achieved last year among the families of railway workers by the Health and Social Welfare section of the South African Railways and Harbours Administration is reproduced below. This may serve both as a guide and as a stimulus to others, particularly to industrial and commercial concerns employing large numbers of married men and women. The area concerned is the Union and South-West Africa.

(*a*) Home Vegetable Gardens	2,160
(*b*) Fruit Trees (free issue)	1,240
(*c*) Vegetable Clubs	1,232*
(*d*) Fruit Clubs	263*
(*e*) Dried Fruit Scheme	12,871 lbs.†
(*f*) State Aided Fruit Scheme	3,259 cases.†
(*g*) Club Vegetable Gardens	£508 9s. 10d.‡
(*h*) Non-State Aided Butter, Milk, Cheese and Bacon Clubs†—	
Butter	13,662 lbs.
Cheese	2,885 lbs.
Powdered Milk	809 lbs.
Bacon	844 lbs.
(*i*) State-Aided Butter Scheme : Monthly distribution from over 190 centres to over 10,500 families (or 50,000 persons—on an average)	761,060 lbs. valued at £29,856†.
(*j*) State-Aided Pre-School Milk Clubs	52 Clubs.
(1) Fresh Milk Clubs	3,256*
(2) Dried Milk Clubs	507*
(*k*) State-Aided Grocery Schemes	£4,000‡

Footnotes.—* Average weekly membership.
† Quantity distributed.
‡ Value of various commodities produced or sold.

Food and Agriculture Organisation of the United Nations.—A matter of paramount importance in the field of nutrition is the establishment by the United Nations Organisation of a permanent body, known as the Food and Agriculture Organisation of the United Nations (F.A.O.), which will endeavour to link the known needs of the people for food more directly with the means for satisfying these needs.

The principal functions of the F.A.O. are the collection, analysis, interpretation and dissemination of information relating to nutrition, food and agriculture ; the promotion, and in appropriate cases, the recommendation of national and international action in respect of all types of research relating to food and agriculture ; the improvement of education and administration and the spreading of public knowledge in these fields, and making technical assistance available to Governments which desire it, in part by providing, in co-operation with the Government's concerned, such missions as may be needed in assisting them in realising the purpose of the Organisation.

The Nutrition Officer attended the first Conference of the F.A.O. held in Washington during May, 1946, as one of the delegates representing the Union. It is evident from his report on the proceedings of that Conference that South Africa stands to benefit immensely from its association with the activities of F.A.O.

2. Housing.

Together with adequate nutrition, good housing constitutes the foundation upon which alone can be built up a healthy people. It is for this reason that nutrition and housing, whilst each—as its individual importance warrants— is under the charge of a specially created statutory body, both come within the sphere of the Ministry of Health. The provision of dwellings which satisfy the requirements of good health involves many problems towards the solution of which the medical officer of health, no less than the architect and builder, must contribute.

The shortage of housing in the Union to-day has become so grave that it threatens not only the health of the people but also their social happiness. It was realised by the legislature that the machinery created in 1920 under the Housing Act would not be adequate to meet the needs of to-day, and accordingly in 1944 it amended the Act to substitute for the Central Housing Board a larger body with wider powers, the National Housing and Planning Commission. The powers and functions of the Commission were described in last year's Annual Report. In the present Report an account will be given of the very im-

portant regulations promulgated under the Housing (Emergency Powers) Act of 1945, and thereafter of the practical achievements of the Commission under its original powers and those exercised by it through the regulations just mentioned.

A.—*Regulations under the Housing (Emergency Powers) Act.*

The Act (No. 45 of 1945) was assented to on the 13th and gazetted on the 22nd June, 1945. On the 20th July, 1945, a comprehensive set of Regulations in terms of the Act was published for information. Comment was invited from all persons and bodies interested.

The first Regulations were gazetted on the 31st August, 1945, and were divided into five Chapters.

Chapter I contains definitions.

Chapter II refers to surveys of residential accommodation and compulsory letting.

Chapter III has reference to compulsory acquisition of land. The object aimed at is to compel the owners of land suitable for housing to part with such land at reasonable prices to enable the Commission and local authorities to proceed speedily with the building of houses. One of the most important provisions is that, on service of a notice of expropriation, the ownership in the land vests automatically in the Commission or the local authority expropriating and enables the immediate commencement of the building of a scheme approved.

Chapter IV provides for maximum payments to builders under building contracts. The builder is required to keep an accurate record of certain specified costs of construction and on the total of these costs the contractor is limited to a charge of 6 per cent.

Chapter V confers certain powers upon the Commission and local authorities in regard to the advance of loans, the conditions relating to such loans, and provides for the exemption of the Commission or any local authority from any specified provision of any Ordinance, Regulation or bye-law, where the Minister authorises such exemption in connection with the carrying out of any specified scheme.

On the 7th December, 1945, Chapters VI and VII of the Regulations were promulgated.

Chapter VI provides for services to be made available to dwellings erected by the Commission, for the letting and sale of such dwellings, the removal of restrictions against building where the Minister authorises such removal, the taking over by the Commission of a scheme which a local authority has not commenced within a reasonable time, the entering into an agreement by one local authority with another for the first one to construct dwellings or schemes in the area of jurisdiction of the second, the prohibition against demolition of any dwelling or the conversion of its use from a dwelling to other purpose without the Minister's consent, the compulsory rendering of returns or reports by local authorities to the Commission when called upon to do so, and the exemption of the Commission from the bye-laws or regulations of a local authority or conditions of establishment of a Township Board relating to the lodgment of plans, type of dwelling to be constructed, the situation of any dwelling in relation to the site on which it is to be constructed and the permission of the local authority before building operations are commenced.

Chapter VII provides for the control of building material and equipment by permitting the Commission, with the approval of the Minister, given after consultation with the Minister of Economic Development, by notice in writing to direct any person who is in possession of certain building material or equipment as set out in the Regulations not to dispose of such materials or equipment, for any purpose other than that specified, or to direct any person to dispose of any such materials or equipment to a specified person at the then ruling prices.

On the 11th January, 1946, Chapter VIII of the Regulations was published relating to the provision and control of labour. These regulations provide for the appointment of a Joint Advisory Board, representative of employer's organisations and Trade Unions; training of learners in building trade occupations for a period of not less than sixteen weeks and thereafter, in consultation with the Board, to complete such training over a period not exceeding three years; the application of trade tests during such training period and the recognition of such learners as artisans after passing such tests and the completion of their period of training; the registration of artisans; the issue of a registration certificate to such artisan which will entitle him to a guarantee, from the State, of payment of an allowance, equal to 80 per cent. of his normal remuneration, during any period of unemployment from the date of registration to the 31st March, 1956, subject to certain non-eligibility provisions and safeguards; the compulsory payment of specified wages to specified classes of employees; the compulsory employment of specified artisans or learners by a specified employer; the termination of such employment; the prohibition of the engagement, resignation or discharge of a specified class of artisan without the Minister's prior consent, and the compulsory notification to a specified authority by a specified class of employer of the latter's intention to terminate the employment of any class of artisan or learner.

B.—*Sub-Economic Housing.*

The Commission considered the fixing of a limit in respect of the cost of construction of a sub-economic dwelling for Europeans, and after submitting its recommendations to the Treasury, advice was received from the Secretary to the Treasury, in August, 1945, that such sub-economic houses should be provided for the income group not exceeding £25 per month, and should be limited in cost to £1,400 (inclusive of everything) for scheduled areas, and £1,200 (inclusive of everything) for non-scheduled areas. Such limitation, however, is not to apply where the system of differential renting is provided, since persons in receipt of higher incomes will have to pay a higher rental.

A new financial formula for sub-economic housing schemes was agreed to by the Government in consultation with the United Municipal Executive towards the end of 1944. Under the new arrangement it was hoped that local authorities would vigorously pursue the building of sub-economic houses for Europeans, Coloured and Natives. Local authorities were expected to undertake this task with moneys advanced by the Government far more suitably than a central body could, and provided they played their part in this most important sphere of providing homes for the Lower Income Groups, it was considered that there would be no need for the Commission to intervene.

Many local authorities are proceeding apace, but there are a number who, for various reasons, either refuse or are unable to face any financial losses to provide houses for their poorer classes. In other cases local authorities are inclined to embark on elaborate schemes at great expense involving very heavy losses.

In the latter case, the losses to the Government (usually three quarters of the total loss) are very real, whereas the smaller loss to the local authority is more apparant than real as the local authority eventually enjoys the complete ownership of the scheme by way of land and buildings.

For this reason some local authorities are apt to provide for construction on very substantial lines in order to create a valuable asset and by so doing the object of providing houses at the lowest possible cost consistent with desirable conditions is defeated.

Concern is therefore felt regarding the successful application of the new financial formula in that the generous terms under which the Government is granting loans may lead to extravagance on such a scale that the scheme may have to be reconsidered.

In the case of Native housing, which, in itself, is a task of tremendous magnitude because of the many thousands of dwellings that are urgently needed, the problem is one that cannot be dealt with by piecemeal methods and must be considered and approached with a view to the formation

of a scheme, the cost of which will be of reasonable proportion to the Government, and capable of achievement without undue burdens on the Commission.

It would seem that an entirely new approach must be made to the provision of homes for Natives as distinct from Europeans and Coloureds; the requirements and conditions are so different, and the Native is advancing so rapidly socially, that schemes must be devised to meet changing conditions. The matter is under consideration by the Commission.

The progress made in sub-economic housing—classified under National Housing: (*a*) ¾ per cent. Loans, and (*b*) 2¼ per cent. Loans, since the Housing Commission was first appointed—1st August, 1944, to the 30th June, 1946, is as follows:—

Houses completed—	
European	768
Non-European	4,979
Under construction—	
European	1,171
Non-European	3,898
Aged Poor: Completed—	
European	56
Non-European	21
Aged Poor: Under construction—	
European	4
Non-European	12
TOTAL	10,909

C.—*Economic Housing.*

Loans in connection with economic housing are granted at 3½ per cent. interest; capital and interest being repayable over 30 years.

The scheme may be classified under two headings:—

(*a*) Loans to individuals.

(*b*) Loans to ex-volunteers.

In regard to (*a*) the following scale of loans has been authorised:—

SCHEDULED AREAS.

Value of Dwelling.	Maximum Land Value.	Maximum Loan.
Up to £650...	£150	The higher of 100 per cent. of the value of the dwelling or 95 per cent. of the value of the dwelling plus land.
£651–£1,300...	£300	The higher of £650 or 95 per cent. of value of dwelling plus land.
£1,301–£1,950.	£450	The higher of £1,235 plus 95 per cent. of land value or 90 per cent. of value of dwelling plus land.
£1,951–£2,600.	£600	The higher of £1,755 plus 90 per cent. of land value or 85 per cent. of value of dwelling plus land (but not above £2,600).

NON-SCHEDULED AREAS.

Value of Dwelling.	Maximum Land Value.	Maximum Loan.
Up to £550...	£150	The higher of 100 per cent. of value of dwelling or 95 per cent. of the value of dwelling plus land.
£551–£1,100...	£200	The higher of £550 or 95 per cent. of value of dwelling plus land.
£1,101–£1,650.	£350	The higher of £1,045 plus 95 per cent. of land value or 90 per cent. of value of dwelling plus land.
£1,651–£2,200.	£500	The higher of £1,485 plus 90 per cent. of land value or 85 per cent. of dwelling plus land (but not above £2,200).

(*Scheduled areas* are those in which wages for the building industry are prescribed in terms of the Industrial Conciliation Act No. 36 of 1937, and Wage Act No. 44 of 1937, or under any other wage regulating instrument. *Non-Scheduled areas* include all centres other than the above.)

Loans may be granted under this scheme to local authorities and Housing Utility Companies: (*a*) for selling, and (*b*) for letting. Loans may also be made to individuals direct by the Housing Commission in cases where the latter is satisfied that a local authority has unreasonably refused to grant such loan.

In the case of (*b*) ex-volunteers—Loans are granted direct by the Housing Commission up to 90 per cent. of the value of land and dwelling; the loans not to exceed £2,400 in any one case.

The progress made since the 1st August, 1944, has been slow but is rapidly progressing since the rate of interest has been fixed at 3½ per cent. and the inauguration of loans for ex-volunteers. Since the 1st August, 1944, to 20th June, 1946, the figures are as follows:—

Dwellings completed—	
European	524
Non-European	413
Under Construction—	
European	272
Non-European	62
TOTAL	1,271

Houses Built by the Commission.

On the 3rd September, 1945, the foundation stone was laid of the first house to be constructed by the Housing Commission under its new powers granted by the Emergency Powers Act.

Tenders were called for on the 24th August, 1945, after a Technical Advisory Committee had been set up in each of the large towns, Cape Town, Johannesburg and Port Elizabeth, comprising representatives of the Institute of Architects, the Chapter of South African Quantity Surveyors, the Federation of Building Trade Employers, and the Building Trade Unions—acting in collaboration with the Housing Commission through its Director.

At the instance of the Government a Building Action Committee was set up to deal with the acquisition of land, the acceptance of tenders and approval of contracts. This Committee comprises representatives of the Union Tender Board, the Lands Department, the Department of Commerce and Industries, the Department of Health, and the Executive Committee of the Housing Commission. The Chairman is Mr. Ivan Walker.

At a meeting on the 21st September, 1945, the Building Action Committee dealt with and accepted the first tenders called for by the Commission. The target aimed at is approximately 6,000 houses, consisting of:—

4,000 on the Rand.	300 at Port Elizabeth.
300 in Pretoria.	225 at East London.
900 in the Cape area.	275 in other prominent towns.

The houses built by the Commission are for letting in the first instance at economic rentals on the understanding that conversion into home ownership may be applied for by the applicant. The conditions of such conversion are still under consideration.

The progress made up to the 30th June, 1946, is as follows:—

	Dwellings Completed.	Dwellings Under Construction.
On the Rand	126	324
Pretoria	28	49
Cape	40	246
Port Elizabeth	12	109
East London	—	143
TOTAL	206	871

Of the dwellings completed, 166 had been occupied and let as at the 30th June, 1946.

The houses, which vary in design, are divided into types A, B and C. The A type houses contain 4 bedrooms; B type 3 bedrooms, and C type 2 bedrooms. The cost of construction varies from £1,576 to £2,381. The rental fixed in respect of the first 1,089 houses to be built is on the basis of 6 per cent. on the total cost, including land and other appurtenances. On this basis the rents vary from £8. 10s. 0d. per month (Type C—East London) to

£12. 14s. 0d. per month (Type A—Witwatersrand). The tenant pays for water and light.

The Housing Commission has now decided to build other types, styled D, E and F. The D type houses will be similar in external appearance to the B type, and will contain 3 bedrooms, with a reduction in internal fittings, and will be standardised as far as possible.

The E type house will be similar in size and accommodation to the D type, but will be a " sub-economic " type and may take the form partly of semi-detached houses.

The F type will consist of small blocks of flats or maisonettes containing 2 to 4 dwellings, each with 2 bedrooms. Each dwelling will have its own private entrance and private garden.

The object of the new types D, E and F dwellings is to reduce cost so as to meet the demand of the lower income groups unable to hire the A, B and C types.

Houses Built by Government Departments and Conversion of Military Camps.

Figures are not available of houses built by Government Departments from 1st August, 1944, but at the end of 1945, there were under construction by Government Departments, 526 dwellings whilst during 1945, 401 dwellings had been built by the Railways.

In regard to the conversion of military camps, 930 had been completed and 319 under construction. These figures make a total of 2,176.

General.—Other matters which the Commission has either dealt with or still has under consideration include :—

(*a*) The purchase was effected of 1,500 standards of timber from Sweden, to be utilised in the building of the Commission's dwellings.

(*b*) The compulsory letting of vacant houses was dealt with by the Commission which caused an investigation to be made of all cases reported to it. The promulgation of an Emergency measure requiring all letting to be controlled by the Controller of Manpower, to a large extent, rendered further steps by the Commission in this connection, unnecessary, and in order to avoid confusion and overlapping, the Controller of Manpower now acts in collaboration with the Commission in so far as compulsory letting is concerned.

(*c*) The drafting of regulations relating to differential rentals has been completed and awaits Treasury sanction.

(*d*) The drafting of regulations relating to a scheme for building societies has been completed and awaits approval of the Treasury.

(*e*) A Rural Housing Scheme in collaboration with the Department of Agriculture has been under careful consideration but so far Treasury approval has not been given as the financial implications appear to be considerable.

(*f*) A comprehensive information circular has been completed and dispatched to all local authorities.

(*g*) A comprehensive circular dealing with the formation of Housing Utility Companies, their powers and functions relating to housing has been drafted and awaits final scrutiny by the Law Advisers.

(*h*) The drafting of forms of application for national houses, leases thereof, application for loans by ex-volunteers and the necessary conveyancing forms connected therewith has been completed. Numbers of these leases have been completed by tenants who have already been put in possession of these houses.

(*i*) Local Committees have been established to deal with the allocation of National houses on the Rand, at Cape Town, Pretoria, Port Elizabeth, Kimberley Bloemfontein and East London, consisting of local members of the Commission, the Director's Regional Representative, and two other members to be nominated by the Commission with power to co-opt one further member as well as to appoint additional members *ad hoc*.

(*j*) The Department of Posts and Telegraphs has agreed to collect the rentals from tenants of the National houses.

(*k*) The Commission has decided in principle on the creation of a State Building Organisation to provide for the lower income groups, to acquire suitable Defence plant available and has conveyed its resolution to the Minister for consideration.

(*l*) The Commission has decided to consider on their merits applications for 100 per cent. housing loans by Utility Companies, submitted in the normal way, in place of granting 90 per cent. of such loans.

(*m*) Divisional Inspectors have been appointed at Port Elizabeth, East London and Bloemfontein to administer the Housing Emergency Regulations for compulsory letting of residential accommodation.

TABLE 42.—HOUSING ACT NO. 35 OF 1920 : WORKING FROM PROMULGATION, 16TH AUGUST, 1920, TO 30TH JUNE, 1946.

PROVINCE.	Loan Applications Approved.			Loan Issues.	Number of Houses.					
	European.	Non-European.	Total.		Complete.	Under Construction.	Approved, but not yet Commenced.	Total.	Total for European Occupation.	Total for Non-European Occupation.
(A) *Economic Housing*—										
Cape	2,456,068	708,310	3,164,378	2,871,825	8,227	159	302	8,688	3,492	5,196
Natal	664,428	276,269	940,697	752,154	1,240	5	231	1,476	611	865
Orange Free State	846,528	20,618	867,146	782,430	2,278	29	375	2,682	1,042	1,640
Transvaal	3,609,970	293,412	3,903,382	3,374,168	5,977	141	417	6,535	4,030	2,505
TOTAL	7,576,994	1,298,609	8,875,603	7,780,577*	17,722	334	1,325	19,381	9,175	10,206
(B) *Sub-Economic Housing*—										
Cape	1,761,077	6,927,874	8,688,951	5,939,529	14,721	1,382	4,851	20,954	3,025	17,929
Natal	23,324	1,594,339	1,617,663	1,420,514	1,656	143	2,236	4,035	20	4,015
Orange Free State	157,758	59,875	217,633	50,222	126	117	154	397	133	264
Transvaal	1,393,465	3,227,858	4,621,323	4,113,786	9,617	781	1,742	12,140	1,487	10,653
TOTAL	3,335,624	11,809,946	15,145,570	11,524,051	26,120	2,423	8,983	37,526	4,665	32,861
(C) *National Housing*—										
Cape	108,784	1,987,780	2,096,564	729,793	774	1,125	1,924	3,823	138	3,685
Natal	301,320	623,397	924,717	91,380	70	87	277	434	289	145
Orange Free State	92,400	96,500	188,900	3,500	—	80	163	243	60	183
Transvaal	1,456,817	3,980,774	5,437,591	1,109,305	1,794	1,354	6,008	9,156	1,013	8,143
TOTAL	1,959,321	6,688,451	8,647,772	1,933,978	2,638	2,646	8,372	13,656	1,500	1,216
(D) *Housing of Aged Poor*—										
Cape	78,049	33,521	111,570	72,918	324	14	93	431	208	223
Natal	25,000	5,000	30,000	25,000	50	—	23	73	50	23
Orange Free State	51,175	—	51,175	42,325	77	—	14	91	91	—
Transvaal	72,100	1,000	73,100	34,800	21	2	25	48	38	10
TOTAL	226,324	39,521	265,845	175,043	472	16	155	643	387	256
TOTAL : (A), (B) (C) AND (D)	13,098,263	19,836,527	32,934,790	21,413,649	46,952	5,419	18,835	71,206	15,727	55,479

* Includes £3,377,332 reissued out of repaid capital.

D.—Slum Clearance.

The Slums Act No. 53 of 1934 was extended during the year to four additional local authorities under the provisions of sub-section (3) of section *one* of the Act, namely, the Town Council of Rustenburg in terms of Proclamation No. 29 of 1946, the Town Council of Malmesbury (Proclamation No. 35 of 1946), the Town Board of Tongaat (Proclamation No. 46 of 1946), and the Public Health Area of Edendale (Proclamation No. 116 of 1946). The number of local authorities included in the First Schedule of the Act was, therefore, 52 on the 30th June, 1946.

Two appeals were lodged under section 4 (10) of the Act against the declaration of four premises in Benoni as slums. In both cases the declarations were confirmed.

E.—Government Training Scheme for Woman Housing Managers.

Now that the provision of adequate housing for all sections of the community has become a matter of major national importance, the time seems opportune to bring again to notice the scheme for the training of woman housing managers which was inaugurated by the Department in 1937. In the intervening years the demand for suitably trained woman housing managers has far outstripped the supply. The field of employment is already ample and, with the development of housing schemes undertaken by local authorities and by other agencies (such as the South African Iron and Steel Corporation), is likely to expand considerably in the future. Conditions of employment vary but they are uniformly attractive and prospects of advancement generally good. Apart from cost of living allowances the initial salary of an assistant housing manager is usually about £300 per annum, that of a senior assistant housing manager about £360, that of an assistant housing supervisor £420 and that of a housing supervisor £500 with a maximum (at present) of £600 per annum.

The present dearth of trained housing managers tends to impede progress in the management of housing schemes in various parts of the Union and is to be deplored because of the fact that housing managers trained on Octavia Hill lines can contribute so much to the economic and social betterment of the less privileged sections of the community.

Training facilities are at present available in three centres of the Union, namely, Cape Town, East London and Pretoria, and vacancies exist for many more trainees than are now in training. As soon as sufficient trained managers can be secured, training schemes in other centres such as Johannesburg and Port Elizabeth will be inaugurated with the co-operation and assistance of the local authorities concerned. It is therefore this Department's earnest aim that persons who are desirous of entering the profession and who comply with the minimum requirements should lose no time in enrolling as trainees, by applying to the local authorities where training facilities are now available. The following brief exposition of the features of the training scheme will, it is hoped, justify the Department's view that the conditions attaching to the training period should commend themselves to persons who may wish to make housing managership their career :—

(1) *Applicants* for training must be over 21 years of age and bilingual South Africans. They must be holders of a University Degree or its equivalent preferably in Social Science. They must be suited by personality for the work. All applications must be approved by the Minister of Health on the recommendation of a fully trained "Octavia Hill" Housing Manager. A probationary period of three months must be served.

(2) *Theoretical Training.*—Students must take the Health Inspector's Examination prescribed by the Royal Sanitary Institute, studying at a Technical College for this purpose at evening classes. This should be supplemented by attendance at lectures on Social Science subjects, if these have not already been taken.

(3) *Practical Training.*—Students must work as apprentices for two years in the offices and on the estates administered by Women Housing Managers fully trained in the "Octavia Hill" system. Whenever possible, students should work in at least two such offices. With the instruction in practical housing administration, opportunity will be given to become acquainted with the social organisation of the town or district. In municipal offices arrangements will be made with the City Treasurer's and the City Engineer's Departments for students to gain practical experience with regard to housing finance and the construction and repair of dwellings.

(4) At the conclusion of the course, on production of the Health Inspector's Certificate and satisfactory reports from the Housing Managers with whom the student has served, a certificate will be issued, signed by the Secretary for Health and the two Housing Managers, stating that the student has now qualified as an Assistant Housing Manager under the scheme.

(5) A grant of £170 per annum (for two years) is made to local authorities by the Union Government in respect of each student during the period of her training. The amount of the grant includes £150 per annum payable by the local authority to each trainee, as salary the balance being provided to meet tuition fees and travelling expenses. The salary of £150 per annum is supplemented by the local authorities concerned to the extent of £60 per annum, so that the salary actually received by the trainee amounts to £17. 10s. per month for the period of her training.

3. Rural and Peri-urban Sanitary Conditions.

Orange Free State.—With the discovery of gold in payable quantities in the northern Orange Free State towards the end of the year under review, the centre of gravity of the problem of exercising control over rural and peri-urban sanitary conditions has shifted to that province and the contiguous areas in the Transvaal, north of the Vaal River.

The Government, profiting by past mistakes arising from uncontrolled development, has been quick to realise the need for the institution of a form of control calculated to regulate development pending the creation of a permanent body on a regional rather than a provincial basis. Thus, within a matter of days after the announcement of the discovery of gold on the farm Geduld (near Odendaalsrust) and following consultation with the Orange Free State Provincial Executive, an Advisory Committee on Regional Planning of the Northern Orange Free State was constituted under the Chairmanship of Mr. F. J. du Toit, the Secretary for Commerce and Industries with representatives, amongst others, of the Provincial Administration of the Orange Free State, to advise on the control of the developing areas and, meanwhile, to regulate the alienation of land.

It is the intention that this Committee should be replaced, as soon as possible, by a permanent statutory body corresponding, in its purpose, to the famous Tennessee Valley Authority which has proved such an outstanding success in America, with power to guide development along the affected areas of the Vaal River.

Professional officers of this Department in June carried out surveys of the developing areas from the viewpoint of town planning in relation to general sanitation and water supplies, and from the viewpoint of rodent control. Plague has for many years been endemic in these areas, so that it will be of utmost importance to ensure, from the very outset, that the rodent proofing regulations are strictly observed in respect of all new buildings. The reports of these surveys were furnished to the Advisory Committee and to the Orange Free State Provincial Administration. Moreover, the Department has already made arrangements for the establishment at Bloemfontein of a regional office under the charge of a Deputy Chief Health Officer, with appropriate auxiliary clerical and professional staff.

Natal.—In Natal there has been little progress in the extension of the areas brought under the control of the Local Health Commission which was established under Ordinance No. 20 of 1941 with the primary object of ensuring that the development of "black belts" in various parts of that Province is so controlled as to safeguard and

promote the public health, although much has already been accomplished in effecting improvements in the Public Health Areas so far proclaimed, namely, Edendale and District, Clermont, Wilgefontein, Waschbank and Hilton Road.

It is evident, however, that the Commission is fully alive to the need for peri-urban problems to be tackled in their incipiency and has accordingly taken the initiative in formulating proposals aimed at the development of the Commissioner's activities on regional lines, involving, as a first step, the establishment of a Midlands (Pietermaritzburg) Region which has met with the approval of the provincial authorities and in regard to which steps are being taken to implement the proposals. If, in practice, the new methods prove satisfactory and efficient in the Midlands Region, it may be assumed that, subject to the necessary financial provision being made, the whole of the Province will ultimately be controlled through regional organisations, with the area of each region being demarcated with reference not only to the existence of " black belts " but also to convenience and economy of administration.

As an indication of what is aimed at the following exposition by the Commission is of interest :—

> " The objective is to establish throughout the Province efficient and satisfactory local self-government. The more direct contributions the Commission can make in the attainment of that end are :—
>
> (*a*) Assisting orthodox local authorities, and
>
> (*b*) (i) Controlling certain areas as Public Health Areas.
>
> (ii) Controlling certain areas as rural local authority areas.
>
> Its exercise of these two functions is not to be regarded as a permanent measure, and it is to be expected that in due time the principle of self-government will be possible of application throughout the Province. It is not expected that this ideal can be attained in a short period, but it should be the target. What is finally visualised is a series of regions having local self-government and when this aim has been achieved the undemocratic instrument of the Local Health Commission will have served its purpose, and the need for its existence will have disappeared ".

Cape.—The problem of peri-urban " black-spots " in the Cape Province has become more acute and more widespread during the past decade, particularly during the war years. The Cape Flats Commission report, Chapter II, B and C makes brief reference to the uncontrolled development which has taken place on the periphery of Cape Town since the beginning of this Century and analyse the causes in some detail.

The problems of Cape Town of the past 50 years have, during recent years, also become the problems of the larger urban centres in the Cape Province, particularly of those towns which are developing industrially, Paarl, Stellenbosch, Worcester, Mosselbay, being good examples. With the exception of Kraaifontein (Paarl Divisional Council) and Klippiesdal (now incorporated in Paarl Municipality) and settlements in the vacinity of Knysna, haphazard development of subdivided estates have not been a major problem outside the Cape Peninsula. Here the problem has rather been one of unauthorised squatting, influenced by the constantly growing demand for industrial labourers. Fortunately, some local authorities, of which Stellenbosch municipality is an excellent example, have been wide awake to this development and have been able to control the position by the incorporation of " problem areas " and the timely provision of adequate housing.

The influx of Natives into the Western Cape is not only an aggravating, but in some cases the main cause of peri-urban problems. Large construction schemes such as Railways, Cape Town University, Table Bay Docks extensions, National Roads and during the war years Defence schemes, e.g. aerodromes, were primarily responsible for the introduction of Native labour into this area. It is true that on the completion of a contract the bulk of these labourers returned to their kraals, but it is also true that a few always remained to form the nucleus of a new Native settlement. The constantly increasing demand for manual labourers and the attractive wages assured by official wage determinations were soon responsible for a weekly influx of at least 500 Natives from the Transkei and Ciskei. This immediately precipitated problems of accommodation in and around Cape Town and when the labour market became saturated here, the overflow had its effect on the surrounding towns. Apart from the immediate social problems which this population migration has brought with it, the ethnic problems of the future which will arise out of the miscegenation amongst the already complicated non-European groups in the Cape give cause for concern.

This uncontrolled influx of Natives at a time when there was a sharp outbreak of smallpox and typhus in the Native Territories became a serious threat to the public health. The control measures adopted in the Territories together with a vigorous followup of all cases and contacts which filtered through has however, proved successful in averting a serious outbreak of formidable epidemic disease in the Cape.

Health officers of the Department stationed in Cape Town are in constant touch with the Cape provincial administration and with local authorities in regard to the problems discussed above. They have undertaken numerous special investigations, many of them in collaboration with officers of the Cape Townships Board and others with the Senior Native Urban Areas Inspector of the Cape. The association with the latter officer has been especially fruitful as it has led to considerable improvement in the housing and health conditions of the large numbers of Natives who, for the reasons indicated above, have congregated in urban areas in many of the south western towns in recent years. The association with the Cape Townships Board is continuous in that an officer of the Department serves on the Board, which meets weekly. The Board operates under Ordinance No. 33 of 1934, and has power to control the conditions under which land is sub-divided for the purpose of establishing new townships. Though the present Cape Ordinance is not as strong, as health authorities would desire, in the powers given to the Board for preventing the growth of unsatisfactory communities, it nevertheless is an important instrument for protecting the health of growing communities.

Transvaal.—In the Transvaal the progress made by the Peri-Urban Areas Health Board, in securing improvements in the sanitary conditions of the areas under its jurisdiction has, having regard to the total extent of those areas, been steady on the whole and in some cases remarkable, so that its value as an instrument of local government is, from a public health point of view, undoubted.

In last year's Report reference was made to the action which was being taken to institute control in respect of areas contiguous to railway reserves, and the following extract from the latest report of the Deputy Chief Health Officer (Railways) indicates that much progress has been made in the twelve months ended 30th June, 1946 :—

> " Local Authorities Committee.
>
> Since the appointment in July, 1945 of a General Secretary to the Local Authorities Committee initial steps have been taken to deal with urban problems arising at predominantly railway centres.
>
> The investigations of the Local Authorities Committee have made it clear that due to low rateable valuations none of the Cape centres where such problems exist can from their own revenue resources finance measures to eradicate the present unsatisfactory conditions, and that grants in aid by the Administration will be necessary. It emerges too that such assistance will be necessary at Waterval Boven if major civic schemes are embarked upon. The question of providing such grants in aid has been submitted to the Minister and action at Cape centres has been deferred pending a decision.

Action taken by the Committee at the several centres where urban problems exists is as follows :—

Waterval Boven.—Ministerial approval was obtained for the submission of a request to the Administrator for the proclamation of Waterval Boven as a Health Committee with senior railway officials as members. The request has been approved by the Administrator.

While considerable delay was occasioned in obtaining approval of the description of the Committee's boundaries due to overwork in the Surveyor General's Office, this has now been received, and proclamation of the Committee is awaited.

Preliminary work on a valuation roll indicates that the rateable valuation will total approximately £360,000 (Land £45,000 and Improvements £315,000) to yield a maximum annual rates revenue of £4,600.

Ministerial approval has been obtained in respect of and agreements will be concluded for the following transactions in favour of the Committee :—

Sale of the Administration's abattoir, grant of approximately 10 morgen of ground for native location, lease of cemetery, market and pound sites, placing of streets, park and garden under the control of the Committee, supply of technical health services, the carrying out by the Administration, under contract, of night soil and rubbish removal services, the valuation of the Committee's area by an officer of the Administration, and the erection of an office for the Committee.

The Committee has tentatively decided that, subject to the necessary finance being forthcoming, the major developments of a Native housing scheme and installation of water-borne sewerage will be proceeded with.

Komatipoort.—The Committee has decided that a recommendation that a Health Committee be established be deferred pending action at other centres where problems are more pressing.

Alicedale.—The Committee has recommended that the Administrator be requested to remove from office the present members of the Village Management Board and appoint Senior Railway officials in their stead, but Ministerial approval has not been sought pending a decision in regard to grants in aid to the Board by the Administration.

The Committee has indicated that the following action will be necessary to remedy conditions in the village of—

Alicedale.—Expropriation of slum property and rehousing of the present slum dwellers in a native and coloured housing scheme, construction of an abattoir, installation of a satisfactory night soil and rubbish removal service, and of inspection of milk and dairies, the introduction of street lighting, a domestic electricity and water supply, and a roads improvement programme.

Cookhouse.—The Committee's recommendations which have received Ministerial approval are—

That the establishment of a Village Management Board is recommended, but that the Administration embark on a housing scheme for its own employees and remove non-employees at present housed under slum conditions on railway property as opportunity offers, and that the Committee engage in discussions with the Divisional Council of Somerset East with a view to the Cookhouse area being constituted a "Local Area" under the control of that council, and that the Committee's functions be extended to include general supervision not only of Cookhouse but of other centres at which, in the absence of such supervision and guidance, slum and other urban problems may arise.

Graafwater.—The Committee has concluded that the Administration is in no way responsible for urban control at Graafwater and that, in view of its minority interest at that centre, the provision of Ordinance No. 27 of 1944 is not applicable and has advised the Provincial Administration and the Divisional Council of Clanwilliam that the area appears to require control by a "Local Area" under the Divisional Council as recommended by the Urbanised Areas Administration Commission.

Touws River.—Action similar to Alicedale has been recommended by the Committee and action is being deferred for the same reason.

The Committe has indicated the need for an extensive Coloured housing scheme to rehouse non-Europeans in the slum known as "Logan's Location" now the Administration's property and a betterment scheme for the village generally".

4. Maternity, Child Welfare and Nursing Section.

(*a*) *General.*—The work of this section has proceeded as usual during the year under review and is still expanding. In October, 1945 the 3 posts of "Nurse-Lecturer" were abolished and 4 new posts created in their place—2 posts of "Inspectress of Nursing and Maternity Services" (both of which have been filled) and 2 posts of "Supervisor of Nursing and Maternity Services" (only one of these posts has been filled). The inspectresses carry out routine inspections of nursing and maternity homes, district nursing and midwifery services and private midwives' work; they also advise local bodies regarding the establishment of maternity, child welfare and nursing services, carry out special investigations, and perform any other duties delegated to them. The supervisor devotes most of her time to assisting local bodies to organise nursing and maternity services and to instructing the nurses and midwives employed by such bodies. This is an aspect of the work to which very little time has been given in the past but for which there has always been a great need because there is no special course of training for the type of nursing or midwifery service subsidised by the Department. The following figures indicate the work which has been carried out by the above staff during the year :—

Centres Visited	206
Inspections—	
Nursing Homes	91
Health Visitors	5
Registered Private European Midwives	152
Registered Private Non-European Midwives	11
Unqualified Private European Midwives	72
Unqualified Private Non-European Midwives	64
District Nurses	168
Meetings Addressed	49
Persons Interviewed	929
Services Organised	30
Lectures Given	29
Special Investigations	16

The number of areas prescribed in terms of Section 39 (*b*) of the Medical, Dental and Pharmacy Act remains at 5.

The "Regulations regarding persons practising midwifery" made under Section 18 (*b*) of the Public Health Amendment Act No. 15 of 1928 were applied to the Vaal Hartz Rural Local Authority Area during the year under review.

(*b*) *Nursing and Maternity Homes.*—The total number of nursing and maternity homes registered with the Department at 30th June, 1946 was 373 with 3,691 beds for Europeans and 1,253 beds for Non-Europeans, as compared with 376 homes with 4,190 European beds and 1,653 Non-European beds as at 30th June, 1945. The nursing staff of these homes, which are all the result of private enterprise, consisted of 903 qualified European nurses (as compared with 1,057 in 1945) and 26 qualified Non-European nurses (as compared with 50 in 1945); 783 unqualified European nurses (as compared with 760 in 1945) and 172 unqualified Non-European nurses (as compared with 287 in 1945). This number of nurses meant an average of one trained nurse to 5·3 beds or one nurse (including untrained) to 2·6 beds.

During the year 157 inspections were carried out—88 by departmental officers and 69 by officers attached to various urban local authorities.

Of the 373 nursing and maternity homes on the register, 28 were considered to have inadequately qualified persons in charge. This is an improvement over last year when there were 39 such homes.

During the year 31 new nursing homes were registered; all of these had suitably qualified persons in charge. The position at 30th June, 1946 was as follows, with last year's figures given in brackets :—

(*a*) 12 (14) homes were in charge of unregistered persons; 8 of these admitted maternity cases only, 3 admitted both general and maternity cases and one admitted general cases only.

(*b*) 11 (14) homes registered for the admission of general cases were in charge of midwives.

(*c*) 5 (11) homes registered for the admission of maternity cases were in charge of registered nurses with no midwifery certificate.

(*d*) 12 (11) nursing homes were registered with medical practitioners in charge and some of these did not always have satisfactory nursing staff.

TABLE 45.—BED ACCOMMODATION AVAILABLE IN NURSING HOMES.

Province.	1943.		1944.		1945.		1946.	
	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.
Cape	1,319	432	1,288	544	1,308	575	1,120	501
Transvaal	1,495	301	1,500	319	1,704	276	1,418	336
Natal	773	907	851	809	899	790	929	403
Orange Free State	250	13	261	14	279	12	224	13
TOTAL	3,837	1,653	3,900	1,686	4,190	1,653	3,691	1,253

TABLE 46.—PERSONNEL OF NURSING HOMES.

Province.	European.		Non-European.	
	Qualified.	Unqualified.	Qualified.	Unqualified.
Cape	288	249	8	59
Transvaal	383	364	13	16
Natal	173	145	4	97
Orange Free State	59	25	1	—
TOTALS	903	783	26	172

TABLE 43.—NURSING AND MATERNITY HOMES INSPECTED DURING THE YEARS ENDED 30TH JUNE, 1941, 1942, 1943, 1944, 1945 AND 1946, RESPECTIVELY.

Place.	Inspections.											
	By Officers of Local Authority.						By Departmental Officers.					
	1941.	1942.	1943.	1944.	1945.	1946.	1941.	1942.	1943.	1944.	1945.	1946.
Cape Province.												
Cape Town	23	28	23	16	23	16	—	—	34	2	—	—
East London	8	6	6	11	9	5	3	—	3	6	—	—
Port Elizabeth	5	5	4	6	3	4	—	—	—	—	—	—
Elsewhere	2	1	—	1	1	1	65	47	38	42	18	28
Natal Province.												
Durban	16	12	10	—	—	1	—	—	—	—	—	—
Pietermaritzburg	2	2	6	3	3	—	—	—	2	—	—	—
Elsewhere	—	—	11	—	—	—	27	16	19	10	2	4
Transvaal Province.												
Johannesburg	27	6	33	28	15	33	—	—	—	—	—	—
Other Rand L.A.'s	10	12	7	7	9	5	—	6	3	—	—	—
Pretoria	7	3	5	6	5	4	2	3	6	6	1	1
Elsewhere	—	—	—	—	—	—	28	39	39	7	37	34
Orange Free State.												
Bloemfontein	—	—	—	—	—	—	—	3	3	1	—	—
Elsewhere	—	—	2	—	—	—	26	24	34	14	21	21
UNION	100	75	107	78	68	69	151	138	181	88	79	88

TABLE 44.—NURSING HOMES REGISTERED WITH THE DEPARTMENT.

Year.	Cape.	Transvaal.	Natal.	Orange Free State.	Total.
As at 30/6/1929	104	90	43	26	263
As at 30/6/1930	124	91	54	29	298
As at 30/6/1931	110	98	51	25	284
As at 30/6/1932	95	94	44	26	259
As at 30/6/1933	105	100	46	25	276
As at 30/6/1934	115	103	43	28	289
As at 30/6/1935	126	128	42	28	324
As at 30/6/1936	120	116	46	34	316
As at 30/6/1937	134	120	49	35	338
As at 30/6/1938	140	126	55	55	376
As at 30/6/1939	147	124	61	48	380
As at 30/6/1940	146	125	62	52	385
As at 30/6/1941	145	123	60	53	381
As at 30/6/1942	140	123	57	45	365
As at 30/6/1943	146	119	55	53	373
As at 30/6/1944	146	118	49	57	370
As at 30/6/1945	142	127	54	53	376
As at 30/6/1946	135	130	50	58	373

(*c*) *Nursing and Maternity Services subsidised in Terms of Act No. 57 of* 1935.—At 30th June, 1946 some 573 posts of nurses and midwives were filled, but many more posts had been authorised. The subjoined Table (Table 47) shows the number of nurses and midwives subsidised in terms of the various sections of Act No. 57 of 1935. As from 1st April, 1946, *sections* 14 (*a*) and 15 (*a*) of this Act have been amended to make provision for a part refund of one-half instead of one-third of the salary paid to the nurse or midwife employed as heretofore.

TABLE 47.—DISTRICT NURSING SERVICE: NURSES, MIDWIVES, NON-EUROPEAN NURSING ASSISTANTS AS AT 30TH JUNE, 1946, IN RESPECT OF WHOM SUBSIDIES OR PART-REFUND OF SALARIES ARE PAID, COMPARED WITH THE TOTALS AS AT 31ST DECEMBER, 1935.

Race.	Part-refunds under Section 14 (*a*).		Subsidies under Section 14 (*b*).		Part-refunds under Section 15 (*a*).		Subsidies under Section 15 (*b*).		Part-refunds to Provincial Administrations under Section 13.	
	1935.	1946.	1935.	1946.	1935.	1946.	1935.	1946.	1935.	1946.
European	23	94	7	41	—	5	—	—	—	140
Native	2	23	—	—	11	108	3	99	—	15
Coloured	—	16	1	1	—	1	—	1	—	29
ALL RACES	25	133	8	42	11	114	3	100	—	184

(*d*) *Infant and Maternal Welfare.*—Infant and maternal mortality rates for 1945 are not yet available but the figures for 1944–45 are republished in Tables 48 to 52 inclusive.

TABLE 48.—EUROPEAN INFANTS: BIRTHS AND DEATHS UNDER ONE YEAR REGISTERED AND INFANTILE MORTALITY RATE, DEATH RATE PER 1,000 LIVE BIRTHS, 1919–1944.

Year.	Cape.			Natal.			Transvaal.			Orange Free State.			Union.		
	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.
1919	16,749	1,351	80·66	2,910	191	65·64	15,338	1,426	86·45	4,727	382	80·81	39,724	3,250	81·81
1920	18,425	1,654	89·77	3,256	235	72·17	16,768	1,576	93·99	4,996	448	89·67	43,445	3,913	90·07
1921	18,062	1,382	76·51	3,370	203	60·24	16,582	1,374	82·86	5,288	379	71·67	43,302	3,338	77·09
1922	18,248	1,294	70·91	3,204	180	54·64	16,370	1,292	78·92	4,920	357	72·56	42,832	3,123	72·91
1923	18,296	1,353	73·95	3,229	197	61·01	15,619	1,261	80·74	5,037	328	65·12	42,181	3,139	74·42
1924	18,730	1,296	69·19	3,410	273	80·06	15,287	1,171	76·60	4,919	382	77·66	42,346	3,122	73·73
1925	18,366	1,343	73·12	3,509	206	58·71	16,348	1,059	64·78	5,188	361	69·58	43,411	2,969	68·32
1926	18,675	1,196	64·04	3,588	189	52·68	16,304	1,186	72·74	5,309	273	51·42	43,876	2,844	64·83
1927	18,537	1,293	69·75	3,435	166	48·32	17,050	1,359	79·71	5,325	314	58·97	44,347	3,132	70·63
1928	18,032	1,240	68·77	3,514	184	52·36	17,949	1,370	76·33	5,318	365	68·63	44,813	3,159	70·49
1929	19,008	1,169	61·50	3,650	177	48·49	18,227	1,342	73·63	5,334	280	52·49	46,219	2,968	64·22
1930	19,468	1,332	68·37	3,641	159	43·65	19,108	1,386	72·54	5,317	300	56·42	47,534	3,177	66·63
1931	19,180	1,182	61·63	3,538	162	45·79	18,733	1,267	67·65	4,975	317	63·72	46,423	2,928	64·07
1932	18,284	1,205	65·90	3,373	204	60·48	18,376	1,402	76·30	4,911	271	55·18	44,944	3,082	68·57
1933	17,931	995	54·49	3,441	166	48·24	18,452	1,266	68·61	4,695	299	63·68	44,519	2,716	61·01
1934	17,642	1,022	57·93	3,310	157	47·43	19,327	1,279	66·18	4,599	270	58·71	44,878	2,728	60·79
1935	18,242	1,016	55·70	3,441	167	48·53	21,109	1,537	72·81	4,925	277	56·24	47,717	2,997	62·81
1936	18,162	980	53·96	3,606	189	52·41	22,192	1,454	65·52	4,670	249	53·32	48,630	2,872	59·06
1937	18,404	1,012	54·99	3,766	175	46·47	23,814	1,439	60·43	4,894	252	51·49	50,878	2,878	56·57
1938	18,727	962	51·37	3,886	193	49·67	24,568	1,322	53·81	4,884	214	43·82	52,065	2,691	51·69
1939	19,022	984	51·73	4,056	151	37·23	25,795	1,304	50·55	4,644	209	45·00	53,517	2,648	49·48
1940	19,091	872	45·68	4,218	224	53·11	26,383	1,431	54·24	4,747	198	41·71	54,439	2,725	50·06
1941	19,026	884	46·46	4,361	180	41·27	26,711	1,481	55·74	4,471	226	50·55	54,569	2,779	50·93
1942	19,422	958	49·38	4,445	202	45·44	27,615	1,298	47·00	4,661	212	45·48	56,143	2,670	47·52
1943	20,169	921	45·66	4,802	199	41·44	28,937	1,448	50·40	4,857	212	43·65	58,765	2,780	47·31
1944	20,540	836	40·70	5,057	181	35·79	30,682	1,386	45·17	4,974	202	40·61	61,253	2,605	42·53

TABLE 49.—INFANTILE MORTALITY: ASIATICS AND MIXED
1944.

Province	Asiatics.			Mixed and other Coloured.		
	Live Births.	Infantile Deaths.	Rate per 1,000 Births.	Live Births.	Infantile Deaths.	Rate per 1,000 Births.
Cape	407	34	83·54	35,501	5,779	162·78
Natal	9,132	808	89·58	934	120	128·48
Transvaal	1,553	157	101·09	1,889	313	165·70
Orange Free State	—	—	—	301	73	242·52
UNION	11,092	999	90·06	38,625	6,285	162·72

TABLE 50.—MATERNAL MORTALITY: EUROPEANS.

Year.	Live Births Registered.	Deaths due to Puerperal Causes.				
		Number.		Rates per 1,000 Live Births.		
		Puerperal Sepsis.	Other Puerperal Causes.	Puerperal Sepsis.	Other Puerperal Causes.	Total Puerperal Mortality.
1926	43,876	88	112	2·06	2·50	4·56
1927	44,347	101	112	2·28	2·53	4·81
1928	44,809	102	121	2·28	2·70	4·98
1929	46,219	140	103	3·03	2·23	5·25
1930	47,536	119	131	2·50	2·76	5·26
1931	46,423	116	102	2·50	2·20	4·70
1932	44,944	126	113	2·80	2·51	5·31
1933	44,519	113	101	2·54	2·27	4·81
1934	44,878	121	148	2·69	3·30	5·99
1935	47,717	119	107	2·49	2·24	4·73
1936	48,630	116	132	2·39	2·71	5·10
1937	50,878	99	124	1·94	2·44	4·38
1938	52,065	78	114	1·50	2·19	3·69
1939	53,517	69	124	1·29	2·32	3·61
1940	54,439	67	116	1·23	2·13	3·36
1941	54,569	46	90	0·84	1·65	2·49
1942	56,143	60	99	1·07	1·76	2·83
1943	58,765	45	122	0·77	2·08	2·85
1944	61,253	42	93	0·68	1·52	2·20

TABLE 51.—MATERNAL MORTALITY: ASIATICS AND MIXED. UNION.

Year.	Live Births Registered.	Deaths due to Puerperal Causes. Number.		Rates per 1,000 Live Births.		
		Puerperal Sepsis.	Other Puerperal Causes.	Puerperal Sepsis.	Other Puerperal Causes.	Total Puerperal mortality
ASIATICS.						
1940.....	9,531	16	37	1·68	3·88	5·56
1941.....	9,841	16	44	1·63	4·47	6·10
1942.....	10,262	26	40	2·53	3·90	6·43
1943.....	10,893	26	40	2·39	3·67	6·06
1944.....	11,092	23	41	2·07	3·70	5·77
MIXED AND OTHER COLOURED.						
1940.....	38,366	81	129	2·11	3·36	5·47
1941.....	38,412	88	121	2·29	3·15	5·44
1942.....	36,631	57	111	1·56	3·03	4·59
1943.....	37,697	64	128	1·70	3·40	5·10
1944.....	38,625	55	120	1·42	3·11	4·53

5. GENERAL HOSPITALS.

In last year's Annual Report reference was made to the fact that, owing to the appointment by the various provincial administrations of their own medical inspectorate staff, the inspection of general hospitals by officers of the Department of Health had become unnecessary. Advice is, however, still afforded the provincial administrations, upon their request, by this Department, in consultation with the Department of Public Works, in connection with the provision of new hospitals or extensions to existing general hospitals.

Meanwhile considerable progress has been witnessed in connection with hospital matters in the various Provinces. In the Cape and Transvaal Provinces ordinances have been enacted to provide, *inter alia*, for the inauguration of free hospital services for the benefit of persons of all races (except that individuals who may demand special facilities, not dictated by medical considerations, would be expected to meet at least a proportion of the cost of such special facilities). Although these ordinances have not yet become operative it is understood that, in both cases, a great deal of preparatory work has been and is being done with a view to bringing the ordinances into effect at early dates.

Reference was made in last year's Report to the establishment, by agreement with the Provinces, of the Central Health Services and Hospitals Co-ordinating Council. The view then expressed, that this Council would serve to bring about a more satisfactory hospital and personal health service in the Union, has been encouragingly borne out in practice. The benefits resulting from its establishment soon became sufficiently apparent to justify the view that its permanency should be assured. It was therefore decided that this object could best be secured by providing a statutory basis for its establishment and the opportunity was accordingly taken to include suitable provisions in the Public Health Amendment Bill which was introduced into Parliament in May, 1946, and passed by both Houses of

TABLE 52.—EUROPEAN DEATHS FROM PUERPERAL CAUSES BY AGE GROUPS.

Causes.	1943. All Ages.	15–19.	20–24.	25–29.	30–34.	35–39.	40–44.	45 and Over.	1944. All Ages.	15–19.	20–24.	25–29.	30–34.	35–39.	40–44.	45 and Over.
Post Abortive Infection.																
Spontaneous, Therapeutic or Unspecified Origin	13	1	4	1	1	4	2	—	10	—	1	3	5	1	—	—
Abortion induced for reasons other than Therapeutic	4	—	2	1	1	—	—	—	1	—	—	—	1	—	—	—
Abortion without Mention of Septic Condition.																
Spontaneous, Therapeutic or of Unspecified Origin	8	2	—	2	3	1	—	—	6	—	1	—	—	4	1	—
Abortion induced for reasons other than Theurapeutic	2	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—
Ectopic gestation	11	—	—	3	4	—	4	—	10	—	—	3	5	2	—	—
Haemorrhage and Diseases of Pregnancy.																
Haemorrhage from Placenta Praevia	2	—	—	1	—	1	—	—	1	—	—	1	—	—	—	—
Haemorrhage from Premature separation of Placenta and other accidental haemorrhage (except Abortion)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other and unspecified hacmorrhage	3	—	1	1	1	—	—	—	3	—	—	—	2	1	—	—
Eclampsia	15	1	4	2	3	5	—	—	—	—	—	—	—	—	—	—
Albuminuria and Nephritis	4	2	—	1	—	—	1	—	14	1	5	2	2	4	—	—
Acute Yellow Atrophy of the Liver	1	—	—	—	—	1	—	—	1	—	—	—	1	—	—	—
Other Toxaemias	6	—	1	1	2	1	1	—	—	—	—	—	—	—	—	—
Other diseases and accidents	3	1	1	—	1	—	—	—	7	—	1	1	1	4	—	—
Haemorrhage and Diseases of Childbirth and the Puerperium.																
Haemorrhage from Placenta Praevia	4	—	—	—	3	1	—	—	—	—	—	—	—	—	—	—
Hacmorrhage from Prcmature separation of Placenta	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other haemorrhages during childbirth	2	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—
Other haemorrhage after childbirth	14	1	—	5	3	4	—	1	13	—	1	2	5	4	1	—
General or local puerperal infection (including puerperal tetanus) with or without mention of Pyelitis	21	1	6	1	4	4	4	1	24	1	5	6	6	5	1	—
Thrombo Phlebitis	2	—	—	—	1	1	—	—	2	—	—	—	2	—	—	—
Embolism and sudden death	5	—	—	1	3	1	—	—	5	—	—	3	1	—	1	—
Eclampsia	8	1	1	1	3	1	1	—	4	1	1	—	1	1	—	—
Albuminuria and Nephritis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acute Yellow Atrophy of the Liver	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
Other Toxaemias	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other accidents	32	—	4	6	11	7	3	1	32	1	7	4	11	6	3	—
Other or unspecified diseases	6	—	—	1	3	1	1	—	2	—	—	—	2	—	—	—
TOTAL	167	10	24	30	49	34	17	3	135	4	22	25	45	32	7	—

Puerperal fever including puerperal sepsis.—The following are the figures for the year ended 30/6/46, with the figures for 1945 given in brackets and for purpose of comparison. There was only 1 (3) death from puerperal fever among Europeans but 131 (100) cases were notified. Among Asiatics there was no (nil) deaths, but 30 (29) notifications and among Coloureds there were 8 (7) deaths and 106 (85) cases were notified.

Ophthalmia Neonatorium.—During the year ended 30/6/46 the death of one coloured infant was ascribed to *Ophthalmia Neonatorium*. The number of cases notified was as follows :—

European, 85 (93); Asiatics, 30 (29); Coloureds 222 (219).

Parliament early in June. As a result the Central Health Services and Hospitals Co-ordinating Council will become a statutory body as from the 1st January, 1947 (simultaneously with the new National Health Council) with no change in its constitution but with its functions as a *consultative* body emphasised and its prestige enhanced.

The Council is presided over by the Minister of Health and consists of three other representatives of the Central Government and one representative of each of the Provincial Administrations. At the Council meetings problems and difficulties of interest to the various provincial administrations and to the central government are freely discussed with the object of arriving at mutual agreement wherever possible. The Council has no power, nor any desire, to impose its will upon any of the constituent members or the bodies which they represent, but it aims at co-ordination by frank discussion, persuasion and agreement. It has served a particularly useful purpose in connection with the co-relation of staff service conditions and salary scales.

Another important development during the year under review was the establishment of a neuro-psychiatric hospital for civilian patients at Tara near Johannesburg. This property was acquired by the Central Government for the Department of Defence during the war and was run by the South African Red Cross Society first as a Red Cross auxilliary hospital for plactic surgery and later as a psychiatric hospital for military patients. With the gradual diminution in the number of military patients increasing accommodation is being provided for civilian cases. Although the building still belongs to the Central Government the responsibility for the administration of the hospital has been assumed by the Johannesburg Hospital Board on the understanding that patients will be admitted from all the provinces of the Union at the expense of the province concerned and that priority will be given to ex-volunteers from any part of the Union.

6. Dental Services.

The main activities of the dental health officer during the period under review were again concerned with dental research and dental health education.

Dental Research.—Before investigation could be carried out in connection with the effect of the different diets on caries in rats, as mentioned in the last Annual Report, it was first necessary to study the eruption times of the teeth and to standardise the rations. It was found that a standard rat ration containing coarse mealie meal produces caries, while the same ration containing very finely ground mealie meal does not produce caries. Certain foodstuffs, which form the bulk of the diet and which appear to be responsible for the high incidence of caries in some areas in South Africa, were fed to the rats in addition to the standard ration. Some interesting results have been obtained from these experiments. Further investigations are now being carried out to confirm these results. It was also found that the addition of fluorine to the drinking water of the rats, reduces caries.

Investigations have also been carried out on pregnant rats with a view to ascertaining the effect of certain additions to the diet on the teeth of the developing offspring.

Dental Health Education.—As mentioned in the last Annual Report suitable dental health education material was distributed in the endemic fluorosis areas warning people of the dangers of excess of fluorine in drinking water. The sound colour film on dental caries was completed and copies have been distributed to the schools and other interested bodies. During the course of the year the dental health officer has personally been engaged in active dental health educational work, both in an extensive health campaign in the Orange Free State and also on other occasions in the Transvaal. In the course of this propaganda work, lectures suited to the public on dental health were delivered while the dental film was shown and explained

7. The Health Centres Service.

While the concept of social medicine is not an entirely new one the techniques of practice are very new to this country. This Department's Polela Health Unit, the University of the Witwatersrand's Fordsburg Community Health Centre and the Natal Local Health Commission's Edendale Health Centre were at the time of the publication of the Gluckman National Health Commission Report among the few organisations which could be stated to be attempting the practice of social medicine. The recommendation by the Commission that the Health Centre should form the basis of a National Health Service, and the subsequent decision by the Government to assume responsibility for Health Centre services made it essential that a Training Scheme be established in the early stages of the service.

The Training Scheme for Health Personnel.

The Training Scheme for Health Personnel was originally based on the Polela Health Unit established by the Department in 1940. On the recommendation of the Advisory Committee on Health Centres it was decided that Polela alone could not satisfy the needs of the various types of personnel who would be required to staff health centres in widely differing areas of South Africa—differing in their social customs, their economic status, their occupational distribution and their racial composition. After much discussion it was decided that Durban would be the most suitable centre for the headquarters of such an institution and a start was made in December, 1945. Temporary headquarters were found in the Springfield Military Hospital. The main reason for the choice of Durban was the recognition of the fact that this town and its immediate environment offered a variety of social groups which it would be difficult to find in so small an area anywhere else in the Union. These social groups included four races, viz :—

> European, Coloured, Indian and Native, and furthermore presented a range varying from Native reserve life, to peri-urban slum problems, to housing schemes of the various races, to industrial conditions. In the course of time facilities for the practice of social medicine could thus be developed within the framework of the Training Scheme thereby providing a suitable background for research into techniques of practice, as well as for the training of various classes of personnel.

The main aims of any institution which seeks to train personnel for such a service as the one envisaged by the National Health Commission necessarily included the following :—

> (1) Original research work in the field of social medicine ranging from the relationship of the individual health to family health and community habits.
>
> (2) The development of techniques for the social application of medical and related knowledge in the treatment of the sick, the prevention of disease, the promotion of health and the rehabilitation of the sick and injured.
>
> (3) The establishment of clinical facilities and the appointment of staff for the teaching and guidance of the various classes of personnel required in the service. This aspect of work is part and parcel of the previous aims mentioned.

In order to develop these aims it was decided to establish at the outset a limited number of divisions, such as Family Health, Nutrition, Epidemiology, Environmental Hygiene, Clinical Pathology and Oral Hygiene. Each of these divisions was to embrace the broad concepts of social medicine. In addition a group of health centres were to be established within the framework of the Training Scheme. These centres were to be so situated as to provide practice among varying groups of people. The Polela Health Unit was included among these, providing a background of Native rural reserve life. Other centres so far established are : (*a*) the Newlands Centre, which practices amongst the peri-urban slum group of Indians and Natives as well as a near urban semi-rural group of Natives, and (*b*) the Springfield Centre, which is incorporated in the headquarters of the Training Scheme and provides a service to a Coloured community, a Native shack dwelling group and Indians in a sub-economic housing scheme as well as in surrounding slum areas. A centre is being planned for Europeans at Wentworth, another adjacent to Native housing schemes, and yet another which will serve employees in an industrial area.

The work undertaken by the Training Scheme during the year ended June 30th, 1946, has been mainly of the nature of laying down the foundations of the service to the public and the programme of training.

Training.—Medical Officers appointed to the health centre service spend a minimum period of three months at the Training Scheme, their work being distributed between Polela, Springfield and Newlands centres. The number who have passed through or are still at the training scheme is 22.

Nursing Sisters.—It has been decided that as far as possible sisters should spend at least three months at the Training Scheme and to date a limited number of European, Coloured and Native sisters have been sent there.

Health Assistants.—The Department has under consideration a three-year course of training for this class of personnel, including European women, and men and women of Coloured, Indian and Native origin. The needs of the service, however, require an *ad hoc* measure and a six months course of training is at present being undertaken to provide a limited number of health assistants to various Health Centres in the country. A group of some 60 persons of all races will complete this *ad hoc* course in September, 1946.

Work of Divisions.—In addition to providing the systematic training of various groups of personnel, the divisions have been gradually developing their special programmes of work.

The Division of Family Health has commenced its functions by paying particular attention to the mother and child complex. Techniques of developmental diagnosis in infancy and the use of the pre-school centre as a diagnostic and therapeutic agency are being explored by a team which includes a medical officer and psychologist.

The Nutrition Division has begun a study of diets of certain families in the area. Other divisions have only just commenced their functions or are about to begin. It is, therefore, too early to report on their activities.

Health Centres in the Training Scheme.

1. *Polela.*—The work of this Centre continues to expand on lines reviewed in the last annual report. The intensive family health service now embraces over 6,000 persons, and in addition the staff provide an outpatient curative service for people of the Polela and Impendle districts as well as for anyone desirous of attending its various curative clinical services. Outbreaks of communicable diseases in the Polela and surrounding districts continue to absorb much time of the staff.

(*a*) *General Curative Clinical Work.*—The total number of attendances during the year was over 20,000. Many of the people attending these sessions live as much as 25–30 miles away from the Centre, which is an indication for the urgent need of additional services for these people. The laboratory work carried out has increased, some 2,500 specimens being examined.

(*b*) *Health Sessions.*—Sessions for expectant mothers and relatively healthy mothers and babies continue to be run each week. Attendance by expectant mothers is one of the most encouraging aspects of the work. The mean duration of pregnancy at first attendance was between the 19th and 20th week, some 50 per cent. of the women attending before the end of the fifth month of pregnancy.

The pre-schoolchild centre admitted 51 children during the course of the year with a mean attendance of over 60 per child. The change in standard of nutrition and health of the children attending these sessions is obvious to even the most inexperienced eye. Each child received a periodic health examination four times during the year, and immunisation against smallpox, typhoid fever, diphtheria, whooping cough and typhus was carried out. Diseases and behaviour defects were treated.

The School Health Service, which included some 1,000 children attending 9 different schools, provided for several examinations per child during the year, treatment of disorders found, immunisation against various prevailing diseases, especially typhoid, typhus and smallpox. The standard of cleanliness is now very high and the incidence of infectious skin diseases, such as scabies and impetigo is now so low that a stage has been reached where the teachers could safely exclude any child suffering from scabies without fear of remaining with only ten to fifteen non-infected children as would have been the case four to five years ago.

The combined School Meal Service served no fewer than 138,609 meals to the children of seven schools at a cost of 2·03 pence per child per day. The total number of school meal days was 195 and the problem still remains as to what service will be provided for the children during school holidays, more especially during the months of August to December when the diet of the people is very restricted and hence their nutritional state very poor.

Control of Communicable Diseases.—The Health Centre was again called upon to investigate and control outbreaks of smallpox and enteric fever in the Polela and neighbouring districts. In addition an outbreak of typhus fever involving the Impendle, Underberg and Polela areas required an organised campaign on the part of the staff.

The outstanding feature of these outbreaks is the fact that not a single case of any of these diseases occurred among the 6,000 people living within the Centre's intensive family service area nor in any of the school children attending schools which are included in the school health service.

Syphillis remains an outstanding communicable disease and the problem of tuberculosis looms larger as the Health Centre's investigations become more thorough.

Health Indices.—As a result of the routine home visits carried out by health assistants, accurate records of births and deaths are maintained and many other indices of community health are assessed.

7·19 per cent. of women in the childbearing age were delivered of children. In the cohort 1915–1919 (persons born during the period indicated), 23·79 per cent. of the women had children, i.e. almost one in every four women between the ages of 30–35 years. The percentage of these women who received skilled ante-natal attention was 66, an increase of 11 per cent. on last year's figures. However, only 10 per cent. were delivered by skilled persons in hospital or at their homes. This proportion could be greatly increased if the Health Centre itself had maternity beds.

The live birth rate was 39·15 per 1,000 population.

The stillbirth rate was 16·99 per 1,000 total births, a considerable reduction on last year's figure of 62·8.

The neo-natal mortality rate per 1,000 live births was 56·03, and the infant mortality rate (0–12 months) per 1,000 live births was 211·21. Neither of these figures is encouraging as it is slightly higher than for the previous year. The crude death rate per 1,000 population was 28·35, an increase over last year of some 6/1,000.

The area in which the intensive service has been established for the longest time and in which the most intensive work continues to be done continues to show a falling death rate. The following figures indicate this fact.

Year.	*Death Rate*/1,000.
1942	38·33
1943	20·90
1944	18·07
1945	15·55

Studies of various aspects of the people's lives continue and the Polela Centre provides the most encouraging results so far achieved in the practice of Social Medicine in South Africa.

2. *Newlands.*—The Department is indebted to the Friends of the Sick Association (F.O.S.A. Settlement) for its co-operation in affording temporary quarters for the Newlands Centre. The Centre is situated 7 miles from Durban city. It is a peri-urban area with an Indian and

Native community. The people live in most distressing conditions with no local authority established other than the Magistrate of the district. Most of the Native male population is employed in Durban. Some return daily to their homes but the large majority only return at week-ends. In many cases the women supplement the family income with liquor brewing.

The Indian community is mainly employed in Durban but there is a large active agricultural community employed in the growing of vegetables and flowers. Despite this activity preliminary surveys indicate that the conditions of life of the Indian are worse than those of the Natives.

The Indians tend to live in the valleys, whereas the Natives live on top of the hills. Most of the population is housed in hovels and shacks constructed with corrugated iron, in overcrowded conditions with lack of the most elementary sanitation and clean water supply facilities.

These conditions make it an urgent matter for some form of local authority to be established. Failing this little progress will be achieved in the community's standard of health.

The prevalent diseases are syphillis (24 per cent. Native adults and 4·5 per cent. of Indian adults examined at the Centre), worm infections, especially roundworms, the dysenteries and the infant diarrhoea, tuberculosis, skin infections and malnutrition.

The following figures of tuberculosis survey work undertaken are of interest:

	Native.	*Indian.*
No. of persons examined.....	335	270
No. with positive reaction to Lederle Tuberculin Patch.....	277 (82%)	156 (58%)
Active pulmonary tuberculosis found on X-ray.....	9	2

A certain number of the positive reactors have still to be screened (55 Native and 41 Indian). The incidence of active disease among the 280 Natives and 229 Indians (i.e. the total excluding those positives who have not been screened) is thus 3·2 per cent. and 0·8 per cent. respectively.

The Centre has been functioning for nine months and during this period 4,616 attendances have been recorded. In addition it is carrying out periodic examinations of children in the two schools of the area—one Native and the other Indian.

Sufficient knowledge has been gained to reveal the important part that this Centre will eventually play within the Training Scheme and the great need of the people in the area for a service of this type.

3. *Springfield.*—This centre commenced in December, 1945, and has developed as the main general clinical section of the Training Scheme. At the outset it confined its service to the people living in the Durban Springfield municipal sub-economic housing scheme for Indians. Its expansion is being determined by the requirements of the Training Scheme and plans are being made for establishing additional sections to cater for Coloured people and Natives, thereby providing the necessary facilities for training personnel of all races.

The Indian community of the housing scheme is extremely poor and have only recently taken up residence in the housing scheme. The vast majority were previously housed in shacks or in overcrowded barrack conditions. Studies so far carried out indicate a most complex set of factors responsible for ill-health, including a high incidence of behaviour problems, extreme malnutrition and com municable diseases such as tuberculosis.

To date some 800 people have received at least one periodic health examination, and their total attendance for treatment and further examination following the initial examination has been 4,463. In addition 654 persons living outside the housing scheme have received medical attention.

Home visits of a very intensive nature are carried out by health assistant trainees, and the correlation of these findings with those of the medical officers' clinical findings has already indicated some of the main *factors* prejudicial to healthy development of this community. Among the more important of these are:—

(*a*) The rentals, which average 25s. per month, are very much more than many families were used to paying as shack squatters. The commonest figures stated vary between 20s. and 30s. per year. This increase in rent must influence other aspects of their budgets, more especially that of food. Thus while we may expect to see a lower incidence of gastro-intestinal communicable disease it is likely that the nutritional state of the community will be adversely affected. These findings are identical with those of M'Gonigle in Great Britain twenty years ago.

(*b*) The relatively young age at which the girls marry and the absence of any knowledge of family spacing leads to large sized families, which in addition to increasing the effects of poverty will in the course of time lead to overcrowding of their small three and four-roomed cottages.

(*c*) The high incidence of illiteracy accompanied by the very low standard of education reduces the earning power of the community. The absence of provision of school facilities in a housing scheme of this sort is a defect which will tend to perpetuate this state of affairs until it is rectified.

(*d*) The misery and poverty of the people is without doubt the major cause of ill health and the extreme state of malnutrition with the high incidence of tuberculosis are the two most immediate problems. This is accentuated by the shortage of food and consequent development of black market prices.

While the centre itself is unable to be executive in regard to such major problems, it has been able to draw the attention of many organisations to the needs of the area, and among other services being rendered are the sale of food at controlled prices to families being served by the Centre, the establishing of meal services to pre-school-children attending the pre-schoolchild centre and the supplementary therapeutic feeding of pregnant and lactating women and their babies. In addition the Centre maintains a very close liaison with various social agencies in Durban which might be of assistance to the families of the area.

Of the 800 persons who have had an initial periodic health examination, no fewer than 75 per cent. evidence one or other gross sign of malnutrition. The main manifestations so far noted are: (1) stunted growth, malposture and underweight, (2) pellagra and pellagra-like signs, (3) phrynoderma, (4) Anaemia of various types.

The Centre maintains the closest relationship with the King George V Hospital for Tuberculosis, the staff of this latter institution carrying out the X-ray examinations necessary, in addition to acting as consultants for various chest diseases.

Detailed studies of growth, behaviour and motor development, disease incidence, and social factors responsible for the state of health, are proceeding and within the near future the Training Scheme with its centres will be able to point to many of the less well recognised factors responsible for ill-health. More than this, it will steadily apply this knowledge for the alleviation or treatment of some of the most important familial and individual disorders.

4. *Other Health Centres.*—Other Health Centres have been established, in accordance with the policy regarding Health Centres, among needy groups in the population. An endeavour is being made to try out the new techniques against as many different kinds of background as possible, and a fairly free hand is being given to the whole-time medical officers in charge to experiment with different techniques. Hitherto it has been impossible to supply any of the Centres, with the exception of Polela, with anything like the numbers and types of auxiliary personnel composing the full team necessary for the successful practice of social medicine. It is, therefore, far too soon to make a final appraisement of results.

Bushbuckridge Health Centre, in the Transvaal low veld, has laid emphasis on the approach to rural Native health needs through health education and domestic agriculture. At Grassy Park on the Cape Flats the concepts of social medicine are being applied to practice among a Coloured semi-urbanised community. At Knysna the Department took over, as a going concern, district midwifery and nursing services previously maintained by voluntary effort, and is using them as a means of establishing that continuous contact with home conditions which is the very basis of Health Centre practice. The work of this Centre is among Europeans and Coloureds. At Umtata, also, where the population is spread over a wide terrain, district nursing stations form the basis of an organised service. Here the nurses are not all stationed at one Centre, but each is established at a sub-centre separated by several miles from its neighbours. The whole-time medical officer constitutes the link between them, visiting each sub-centre once a week. The nurses visit the homes of the people, and conduct infant welfare and minor casualty clinics. At Alexandra the Department has joined forces with the University Health Centre, which has already for some years been supplying curative services and some preventative services. The Department is here able, therefore, to concentrate on the preventive aspects of Health Centre practice. Several other Health Centres were due to be opened in July, 1946, in several parts of the Union, but an account of them belongs properly to next year's report.

8. The South African Medical and Dental Council.

Résumé of Business for the year ended 30th June, 1946.

The half-yearly meetings of the Council were held in September, 1945, and March, 1946. These meetings lasted 4 days each. The Executive Committee met on 8 occasions during the year, 7 of the meetings lasting 2 days each, making a total of 15 days spent on Executive Committee business. The following further meetings of Committees were held :—

The Medical and Dental Education Committee : 2 meetings lasting in all, three days.

The Dental Committee : 1 meeting.

The Auxiliaries Committee : 3 meetings.

The Specialists Committee : 4 meetings.

Special Disciplinary Committees : 4 meetings, 3 of which each lasted for 2 days.

The following table indicates the number of registrations and restorations effected during the year :—

	Registered.	*Restorations.*
Medical Practitioners	300	23
Specialists	70	1
Dentists	25	8
Medical Students	466	92
Dental Students	68	5
Masseurs	1	2
Physiotherapists	29	—
Radiographers	4	—
Optometrists	1	—
Dental Mechanicians	2	—

Of the 300 medical practitioners registered, 243 held qualifications of South African universities, and the remaining 57 held qualifications of recognised universities overseas.

The following specialists were registered during the year :—

Specialists in—	
Medicine	7
Surgery	9
Anaesthetics	11
Obstetrics and gynaecology	6
Otorhinolaryngology	2
Orthopaedics	3
Pathology	7
Psychiatry and neurology	1
Radiology	9
Physical medicine	6
Ophthalmology	4
Venerology	4
Urology	2
Pediatrics	2

The following table indicates the number of persons whose names appear in the various registers kept by the Council as at the 30th June, 1946 :—

Medical practitioners	4,502
Dentists	784
Medical students	1,971
Dental students	175
Masseurs	107
Physiotherapists	39
Radiographers	6
Optometrists	1

The Dental Mechanicians Board was established early in 1946 and since the establishment of that Board the Council has ceased to keep a register of dental mechanicians.

In the last report mention was made of the establishment of the South African Nursing Council, which took over all the functions of this Council relating to nurses and midwives. As mentioned above, a Dental Mechanicians Board was established early in 1946 and that body has now taken over from the Council all matters relating to the registration of dental mechanicians.

The Council has been actively engaged in establishing registers for various categories of medical auxiliaries and during the year a new voluntary register for optometrists was opened. The response from persons practising optometry has been very disappointing and only one person has so far registered in this register. Other categories of auxiliaries are pressing the Council to establish registers, and registers have been opened for health inspectors and food inspectors. The Council is, however, considering the opening of registers for such classes as medical technologists, dietitians, occupational therapists, health assistants, and several other classes of auxiliaries. Members of these classes of auxiliaries have felt the need for registration and in the absence of compulsory registers they have approached the Council and urged upon the Council to establish voluntary registers until such time as the necessary legislation can be passed making these registers compulsory. The Council has prepared a draft Medical Auxiliaries Registration Bill, and the Bill should have been introduced into Parliament early in the 1946 session, but unfortunately the Government did not have the time to proceed with the Bill. It has, however, given an assurance that the Bill will be proceeded with at the earliest opportunity.

In 1946 an Act to amend the Medical, Dental and Pharmacy Act was passed by Parliament and under the amending Act the Council has been granted extended powers. The Council proposes under those powers to establish registers of medical practitioners with qualifications which are not otherwise recognised, subject however, to the practitioners who are so registered confining their activities to such institutions as mission hospitals and scientific institutions. Regulations to give effect thereto are now being drafted. The Act further gave the Council powers to establish a year's resident medical officership for all newly-qualified graduates. The Council proposes to introduce within a short time regulations requiring all new graduates to have served as resident medical officers for a period of one year before they can be registered as medical practitioners.

The Council now has powers to require all medical practitioners and dentists to pay to it annually a registration fee. Steps to implement this are now being taken and from 1947 all medical practitioners and dentists will be required to pay to the Council a small fee each year. The payment of this fee will greatly assist the Council in maintaining contact with all registered persons and of keeping their addresses up to date, for inclusion in the medical and dental registers.

Further consideration has been given to revised rules for the registration of specialists, whereby the requirements for recognition as a specialist will be considerably tightened up. It is felt that such steps are considerably overdue. Rules to give effect to the new requirements are now being drafted and they will shortly be promulgated.

The Council still continues to receive a very large number of complaints against medical practitioners and dentists. A large amount of the time of the Executive Committee of the Council is occupied in considering and dealing with

these complaints. Unfortunately it was found necessary during the year to hold 12 formal enquiries, whilst a large number of other cases were disposed of without the necessity of holding enquiries. Of the practitioners whose conduct was enquired into, the Council found it necessary to erase the name of one from its registers. Four were suspended for periods varying from 4–12 months, four were cautioned and reprimanded, two were cautioned, and the enquiry into the conduct of another has been postponed until a later date. One of the practitioners who was suspended from practice was a dentist.

The growth of the work of the Council has extended so rapidly that the Council has recently been considering separation from the South African Pharmacy Board. The Council has also agreed to increase its staff and at some later date obtain larger offices.

9. The South African Pharmacy board: Résumé of Business for the Year ended 30th June, 1946.

The half yearly meetings of the Board were held in July, 1945 and January, 1946 and special meetings were held during October, 1945, February and April, 1946. The half yearly meetings lasted four days each. The special meetings in October and April three days each and the meeting in February, one day. Meetings of the Committees of the Board were held in conjunction with the meetings of the Board itself.

During the period under review 85 chemists and druggists 50 managing directors of companies carrying on the business of chemists and druggists and 134 apprentices were registered. Of the chemists and druggists registered 76 held the Qualifiying Certificate of the Board and the other 9 held the certificate of the Pharmaceutical Society of Great Britain. The following table indicates the number of registrations, restorations and erasures effected during the period under review:—

Registrations, Restorations and Erasures.

	Chemists and Druggists.	Managing Directors.	Apprentices.
On Register, 1/7/1945.	1,640	168	393
Registrations.....	85	50	134
Restored to Register	1	—	—
	1,726	218	527
Erasures—	15	1	—
Due to death.....	4	39	108
Others.....			
	1,707	179	419

Examinations were held in December, 1945, and January, 1946. The following tables show the results of these examinations:—

Preliminary Scientific Examination.

Examination.	No. of Candidates.	Passed.	Failed.	Referred.		
				Botany.	Chemistry.	Physics.
Whole Exam.....	217	59	108	12	23	15
Botany.....	8	6	—	2	—	—
Chemistry.....	32	23	—	—	9	—
Physics.....	28	20	—	—	—	8

Qualifying Examination.

	No. of Candidates.	Passed.	Failed.	Referred.		
				Chemistry.	Pharmacy.	Dispensing.
Whole Exam.....	111	26	44	26	1	14
Chemistry.....	44	20	—	24	—	—
Pharmacy.....	1	1	—	—	—	—
Dispensing.....	13	12	3	—	—	1

During the period under review the Board held enquiries into complaints of unprofessional conduct on the part of several chemists and druggists. In three cases the Board found the chemists and druggists concerned guilty of the charges preferred against them and ordered that their names be erased from the register of chemists and druggists. In another case the chemist and druggist was found guilty of improper conduct and was cautioned.

The Board devoted much time to the revision of the system of training and examinations of chemists apprentices, and far-reaching changes were considered. This matter was not brought to finality, and the Board is still consulting the training institution and other bodies on this subject.

The Board's scheme for assisting ex-volunteers who were apprenticed to chemists and druggists or who wish to be apprenticed was successfully launched. The special intensified courses for these ex-volunteers were established at six centres in the Union and 140 students were enrolled. There are still some 60 ex-volunteers awaiting admission to further courses.

10. South African Nursing Council.

By the Nursing Act (No. 44 of 1944) dated 8th November 1944, the South African Nursing Council came into existence. A great deal of time and thought since then has been given to consolidating and improving the position and status of qualified nurses.

During the year under review, the Nursing Amendment Act (No. 12 of 1946) was passed and came into operation in April, 1946. This Amendment extended the application of the Principal Act to the Mandated Territory of South West Africa, and gave the Council certain additional powers: (*a*) To impose annual subscriptions on all qualified nurses (*b*) To keep registers of nursing agencies and prescribe the conditions under which they may conduct their business (*c*) To prescribe maximum fees chargeable (*d*) To establish registers of classes of nurses other than those in existence.

The following regulations have also been promulgated under the Nursing Act:—

(*a*) Conduct of the Council's business.
(*b*) Conduct of enquiries.
(*c*) Method of election of the Council.
(*d*) Acts or ommissions by registered nurses and midwives.
(*e*) Training and education of different types of nurses.
(*f*) Training and education for the certificate in fever nursing.

Much time also has been spent in efforts to improve the standard of training of nurses and midwives by the following:—

(*a*) Inspection of training schools.
(*b*) Revision of the training of nurses and midwives.
(*c*) In conjunction with the university medical schools to obtain higher qualifications and diplomas for trained nurses and midwives.

Registration of Nurses and Midwives.—The following Tables shows the registrations effected during the year under review together with the total number of names appearing in the registers kept by the Council as on 30th June, 1946:—

(*a*) NURSES AND MIDWIVES.

Class of Nurse.	Registered on Grounds of Foreign Qualifications.	Registered after Examinations.	Restored.	Total on Registers on 30/6/46.
Medical and surgical nurses.....	83	549	75	9,082
Male nurses.....	—	11	2	257
Mental nurses.....	6	29	18	987
Nurses for mental defectives.....	1	11	5	223
Fever nurses.....	—	20	—	91
Sick children's nurses.....	—	—	—	9
Krankenplegerin, S.W.A.....	—	—	—	48
Total.....	90	620	100	10,697
Midwives.....	33	602	67	7,232
Grand Total.....	123	1,222	167	17,929

(*b*) STUDENT NURSES AND STUDENT MIDWIVES.

Class of Student.	Registered.	Removed from Registers.	On Registers on 30/6/46.
Medical and surgical nurses..	5,006	1,081	3,925
Male nurses.....	122	22	100
Mental nurses.....	354	59	295
Nurses for mental defectives..	132	37	95
Fever nurses.....	51	19	32
Total student nurses.....	5,665	1,218	4,447
Midwives.....	1,196	639	557
TOTAL STUDENTS.....	6,861	1,857	5,004

NOTE.—Of those removed from the students' register, 1,222 passed out as trained nurses and 635 abandoned their training for various reasons.

Examinations.—The following Table shows the number of candidates who entered for the examinations conducted by the Council during the year ended 30th June, 1946, and the results obtained by them.

Examination.	Passed.	Failed.	Total Entries.
Medical and surgical nurses—			
Preliminary.....	1,043	578	1,692
Final.....	530	231	770
Male nurses—			
Preliminary.....	17	17	39
Final.....	11	22	33
Mental nurses—			
Preliminary.....	61	54	149
Final.....	41	8	54
Nurses for mental defectives—			
Preliminary.....	21	12	39
Final.....	15	—	16
Fever nurses.....	20	1	21
Midwives.....	603	182	804
TOTALS.....	2,362	1,105	3,617

NOTE.—"Passed" includes candidates who passed with honours.
"Failed" includes candidates who failed in one portion only.
"Total Entries" includes candidates who did not present themselves for examination.

11. ADMINISTRATION OF THE MEDICAL, DENTAL AND PHARMACY ACT, NO. 13 OF 1928.

Habit-forming Drugs.

Consequent upon the cessation of hostilities in Europe and the subsequent improvement in the supply and shipping positions, added to the necessity for importers to replenish their low stocks, the importation of narcotic drugs into the Union showed a considerable increase over the previous year. The following quantities of narcotic drugs were imported during the period under review:—

Raw opium, 1,154 lb.; medicinal opium, 422½ lb.; opium in the form of extracts and tinctures, 23⅖ lb.; Indian hemp in the form of extract, 28 lb.; morphine, 115 lb.; diamorphine, 29⅔ lb.; cocaine, 41 lb.; methylmorphine (codcine), 333 lb. and ethylmorphine (dionine), 36½ lb.

The exports of narcotic drugs to the adjoining territories were:—

Opium in the form of extracts and tinctures, 21 lb; morphine, ¾ lb; diamorphine, 6½ drams and cocaine 9 ounces.

In addition to the above amounts a quantity of 170 lb. Indian hemp was exported to Great Britain under special permit.

Inspections of the records relating to habit-forming drugs, which must be kept by medical practitioners, dentists, chemists and druggists and authorized veterinarians in terms of the provisions of the Medical, Dental and Pharmacy Act, 1928 (Act No. 13 of 1928), have been carried out by departmental inspectors in areas easily accessible by rail. Such inspections have, for the most part, been restricted to chemists and druggists. In the larger towns the requirements of the Act have been strictly observed, but in outlying areas where it has not been possible to pay regular visits due to transport difficulties and shortage of inspectorate staff, the position leaves much to be desired.

Investigations reveal that large quantities of narcotic drugs are prescribed by medical practitioners which would appear to be used for other than strictly medicinal purposes as defined in the Act. Warnings have been issued to the persons concerned as a first step, nevertheless it is the Department's intention to take very strong action to deal with this abuse as soon as conditions return to normal.

Poisons.—General dealers premises have been inspected wherever possible and as limited transport facilities would allow. The provisions of Act 13 of 1928 relating to the stocking and sale of poisons have not been strictly observed by general dealers and the position has deteriorated since the previous year. This can only be accounted for by the inability of the Police and inspectors to carry out regular systematic inspections.

TABLE 53.—PROSECUTIONS AND CONVICTIONS UNDER LAWS RELATING TO HABIT-FORMING DRUGS DURING THE YEAR ENDED 30TH JUNE, 1945.

Province.	European.		Native.		Asiatic.		Other Coloured.		Total.	
	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.
Cape.....	45	40	1,018	942	8	8	1,091	1,058	2,162	2,048
Natal.....	29	28	2,756	2,675	151	149	226	219	3,162	3,071
Transvaal.....	54	50	3,988	3,837	15	15	289	280	4,346	4,182
Orange Free State.....	6	6	285	277	—	—	13	13	304	296
UNION.....	134	124	8,047	7,731	174	172	1,619	1,570	9,974	9,597

Violations of the laws relating to dagga and other habit-forming drugs continue to show a steady increase over the years and, as will be seen from the Table above, 9,974 prosecutions were instituted of which 9,971 were in respect of dagga and 3 in respect of other habit-forming drugs. Large quantities of dagga seized in the course of investigations were destroyed by burning after the legal proceedings in the matter had been completed.

Quantities of opium and small amounts of other narcotic drugs were seized at Union ports and confiscated on account of illegal importation. Such quantities, where possible, were disposed of to firms of manufacturing chemists.

The number of prosecutions for offences under the poisons laws show a decrease when compared with the figure for previous years, nevertheless the number of contraventions has increased considerably.

New synthetic narcotic drug (*Pethidine*).—During the course of the year, the Department's attention was drawn to a recently discovered synthetic drug to which the name "isonipecaine" was given in the United States of America. The substance is identified chemically as 1–methyl–4–phenyl–piperidine–4–carboxylic acid ethyl ester and was placed on the market under various trade names. The

substance is recommended for inclusion in the British Pharmacopoeia under the name *pethidine hydrochloride.*

This drug has an effect similar to morphine upon the human organism, although it has no appreciable chemical similarity to morphine. The drug possesses addition liability comparable with morphine.

This drug is neither a poison nor a habit-forming drug within the meaning of the 4th or 5th Schedules to the Medical, Dental and Pharmacy Act No. 13 of 1928 and thus there is no restriction on its sale in the Union.

In January, 1946, the Union Government advised the Secretary-General of the League of Nations that it agreed that the drug should be brought within the scope of the Geneva Opium Convention, 1925, which in effect, is an agreement to control the drug on similar lines as morphine.

The Department hoped that this drug would not make its appearance on the South African market to any great extent until such time as the necessary legislative measures, to declare it a habit-forming drug in the Fifth Schedule to Act No. 13 of 1928, could be taken. The hope was short lived, however, for in July, 1946, a widely distributed magazine gave publicity to the drug and shortly afterwards a leading newspaper brought it to the notice of the South African public. These articles stated that the effect of the drug was similar to morphine without the opiate's danger of addiction.

In view of the definite morphine-like physiological characteristics of pethidine and its recommended use in the practice of medicine, in cases where morphine might be indicated, to accomplish the same purposes as morphine and in view of the experiences in other countries where it has been established that this drug possesses the liability of producing physical dependence similar to that produced by morphine, and similar addition liability, it is believed that unless subjected to the same control as morphine, the distribution and use of this new synthetic drug will soon be productive of serious abuses, with inevitable spread of addiction.

In the circumstances the Department recommended that as a matter of extreme urgency requiring prompt action, Parliament should add pethidine and its salts to the Fifth Schedule to Act No. 13 of 1928, as a habit-forming drug.

12. Administration of the Food, Drugs and Disinfectants Act No. 13 of 1929.

During the year under review, powers under section 2 (3) of the Food, Drugs and Disinfectants Act were conferred upon the Peri-Urban Areas Health Board (Transvaal)—(100 free samples tests per annum: Government Notice No. 2398 of 7/12/45) and Mossel Bay Municipality (Cape)—(12 free samples tests per annum: Government Notice No. 754 of 5/4/46).

Samples taken for testing under the above Act shew an increase over last year (5,678 as against 5,083 for 1944–45). This number would in all probability have been very much greater were it not for the fact that one Food and Drugs Inspector (Cape) was engaged most of the year on other departmental duties, while another (Natal) returned to duty from Active Service only on 1st April, 1946.

Table 54 summarises the position in this regard.

Table 54.—Samples taken for Examination or Analysis under Act No. 13 of 1929, during the Year ended 30th June, 1946, and the Results.

Place.	Total Taken.	Number Analysed or Examined.	Number Found Adulterated or Incorrectly or Falsley Described.	Prosecutions.	Convictions.
Ports of the Union	31	31	—	—	—
Cape Province	1,521	1,502	543	151	120
Natal Province	668	668	35	18	17
Transvaal Province	3,209	3,206	573	167	146
Orange Free State Province	249	249	19	16	13
Total	5,678	5,656	1,170	352	296

13. D.D.T. Field Experiments.

During the year under review, the use of D.D.T. as a surface or residual insecticide both in the powder form and in solution has been greatly extended by Government departments and by private individuals and companies. It is proving extremely popular with the public, and is a most potent weapon in the constant battle against blood sucking insects and household pests. As the following experiments will show, it has been used with success in combating malaria (the adult anophelene mosquito), typhus (the louse and flea), plague (the flea) and household pests (the bed-bug and the cockroach).

A. The Deputy Chief Health Officer, Durban, reports:—

(i) *Malaria Control.*—The use of liquid D.D.T. insecticide (5 per cent. in kerosene) against harbouring adult vectors gives great promise of facilitating control in the rural areas. With adequate supplies now becoming available it will be employed on a greater scale in the future when it will be possible to assess more accurately its potentialities as an effective agent in the control of malaria.

(ii) *Typhus Control.*—D.D.T. is now used exclusively in the control of outbreaks of typhus fever in rural areas and Native Reserves in Natal. It is used as a dusting powder, 5 per cent. in talc., and is applied by means of a dredger or a pump-blower. Being now available in 8 oz. cartons ready for use it is readily transported and as readily distributed. This is a tremendous advantage in broken country where the population is scattered broadcast. The rural Bantu have taken to its use readily and ask for more.

B. The Senior Malaria Officer, Tzaneen, reports:—

Malaria Control.—Considerable experimentation with liquid D.D.T. was carried out during the year under review, and the following is a summary of the results so far obtained:—

(i) Throughout our experimental work 100 mgm. per sq. foot D.D.T. was used amounting to 25 oz. 5 per cent. D.D.T. in kerosene solution per hut. Excellent results were obtained in this concentration and it was not considered necessary to alter our programme at this stage.

(ii) Comparative experiments were done in two valleys, between straight control methods (oil and pyrethrum) and D.D.T. insecticide. This was done in a hyper-endemic malaria region, and the ratio of costs was—D.D.T.: Straight Control : : 1 : 25. The mosquito infectivity index here is of the order of 10 per cent to 15 per cent. and the spleen rates from 30 per cent. upwards.

(iii) The residual effect of D.D.T. has been so well established that in any hyper-endemic malaria area in South Africa we would safely keep malaria out with two sprayings per malaria season.

(iv) The toxic effect of D.D.T. is more lasting if sprayed on smooth surfaces.

(v) As neither of the predominant vectors (*A. gambiae* and *A. funestus*) has a homing instinct, it is presumed that in 2–3 months any mosquitoes which may initially escape will be killed.

On the whole, the use of D.D.T. as a practical malaria control method is welcomed, in view of the saving of time and trouble and the opportunities for better supervision.

C. The Deputy Chief Health Officer, Railways, reports:—

(i) *Fumigation of Coaching Stock.*—Whilst fumigation by means of the liquid HC N gas method requires a ventilation period of 12 hours on account of the poisonous nature of the gas, fumigation by means of D.D.T. requires no ventilation period, and has speeded up the return of coaches to traffic by 100 per cent. Results of D.D.T. fumigation have been most encouraging up to date. The cost, excluding labour and material, of a D.D.T. coach fumigation is approximately 8s. 4d. as compared with £1 2s. 6d. of a liquid HC N gas fumigation.

(ii) *Deverminisation of Train Bedding.*—Experiments in this connection have not been concluded yet. All bedding stores are, however, regularly treated with D.D.T. The following table is of interest :—

(*a*) BUILDINGS.

Method of Fumigation Employed.	Number of Fumigations.	Percentage Fumigations.
		%
HC N gas.....	1,527	43
Insecticide spraying.....	1,407	40
D.D.T. liquid.....	587	17
Totals.....	3,521	100

(*b*) COACHING STOCK.

Method of Fumigation.	Number of Fumigations.	Percentage Fumigations.
		%
HC N gas.....	9,111	80·7
Insecticide spraying.....	313	2·0
D.D.T. liquid.....	1,955	17·3
Totals.....	11,279	100·0

(iii) *Malaria.*—In order to establish the period of effectiveness of D.D.T., all treated and untreated huts at Komatipoort were sprayed regularly with pyagra for check purposes and a record kept of the catches of each. From the following table it will be seen that the results were very encouraging and it is anticipated that with two applications of the insecticide (D.D.T.) next season the results will be more satisfactory still. The principle of D.D.T. replacing other insecticides for anti-adult work at centres where intensive control measures are necessary is an important one from both the labour and material aspects, as to maintain an effective control it was previously necessary to visit and treat each native hut in the control belt twice per week.

Week Commencing	D.D.T. Treated Huts.	Adults Collected.	Adults per Hut.	Untreated Huts.	Adults Collected.	Adults per Hut.
18/2/46.....	2,031	4	0·0018	1,066	133	0·1247
25/2/46.....	2,595	75	0·0289	522	360	0·6896
4/3/46.....	2,595	39	0·0150	529	355	0·6710

In Natal, approximately 30 gallons of D.D.T. were used at Felixton and Gollel for observation purposes. It was found that half a gallon of D.D.T. insecticide was required to treat a hut effectively.

All passenger trains operating in and through malarious areas were regularly sprayed. During the latter part of the season passenger trains at Komatipoort, Rubbervale, Messina and Beitbridge were regularly treated with D.D.T. In Natal notices were displayed in all the ticket office windows of stations on the North Coast advising passengers that, if desired, bedding boys would spray their compartments. The routine D.D.T. treatment of coaching stock for vermin will also assist the mosquito control measures in trains, as the former includes the regular spraying of ceilings and lamp heads. Motor Rail buses operating in and through malarious areas were also regularly sprayed.

D. Plague Research Officer reports :—

Plague.—D.D.T. as a powder or dissolved in paraffin is a highly satisfactory pulicide in native huts. A 5 per cent. mixture in talc dusted at the rate of half-a pound per hut destroyed fleas in 24 hours and kept the floor practically free for 9 weeks. Equal parts of D.D.T. and Cyanogas "A" dust, pumped at the rate of 1 lb. of the mixture per hut, gave an instantaneous knock down and an equally efficient residual effect. Two pints of 5 per cent. D.D.T. in paraffin or one gallon of a soap emulsion (containing 2 pts. 5 per cent. D.D.T.) sprayed, gave an almost immediate knock down and an efficient residual effect.

E. Deputy Chief Health Officer, Cape Town, reports :—

Typhus Control.—The use of D.D.T. by the field units, attached to the departmental organisation in the Transkei is now general. The dusting method has considerably simplified and accelerated the handling of typhus outbreaks. The method of application of D.D.T. dust is that evolved by the British Military Authorities in the Middle East, and subsequently developed by the British and U.S.A. Authorities in the handling of typhus in Italy. This method is a very simple one in that a dust gun is charged with a 5 per cent. D.D.T. powder and is then used to apply the powder to the internal surfaces of the clothing of the person. This technique is one of the most important practical developments in the control of typhus yet evolved and is one of the ways in which South African civil health is indebted to the lessons learned by the military during the recent great war.

14. Transkeian Territories.

The following excerpts are made from the report for the year 1945–46 submitted by the Assistant Health Officer, Umtata :—

> "The lack of accurate statistical data, in respect of marriages, births and deaths, and of the occurrence of communicable diseases has been (and continues to be) a great handicap to the Health Authorities. One attempt to overcome this difficulty has been made by the establishment of what is called 'vaccination census'. During public vaccinations the opportunity is taken to obtain information in regard to the cripples, the blind, the family circle, the tuberculotics, the number of cases of infectious disease at each such kraal or family, number immunised, etc. This information is entered on record cards in respect of each kraal, which cards are then arranged alphabetically and grouped according to locations and districts. There is thus initiated the nucelus of a valuable and permanent record. This vaccination census was carried out and completed in December, 1945, in respect of some 27 magisterial districts and records of approximately 1,290,000 persons so obtained. Another method employed was the carrying out of detailed surveys by three native medical aids in the locations of Kambi, Qokolweni and Tabase—all in the Umtata magisterial district—in respect of population, births and deaths, and socio-medical conditions, housing, diet, economic status, water supplies, sanitation, etc. These are all valuable contributions to the statistical assessment of public health problems.
>
> It is held that the Transkeian Territories can (and should) produce sufficient foodstuffs for their own needs, and even some surplus; but this is not being achieved under existing conditions. Among the causes are the unequal distribution of land, over-stocking, lack of controlled water supplies, and lack of organised closer settlements. It is considered that the health of the people in the Transkei depends ultimately almost entirely upon the productivity of the soil.
>
> The rural clinics continue to do good work. Altogether there are 34 rural clinics, 7 of which are under the direct supervision of the Department, the remainder being under the care of part-time district surgeons. These 34 rural clinics are situated in 18 different magisterial districts—the two districts with the largest number being Umtata (with 7) and Nqamakwe (with 5).
>
> An interesting development is taking place at the Mbutu in the Tsolo district, where Native women are being trained as home welfare officers. Miss Rowe, the officer in charge of the training, reports as follows :—
>
> This Centre was started early in 1945 by the United Transkeian Territories General Council. It is situated at Mbutu which is in the Tsolo district and overlooks a settlement which has about 50 landless Natives of various types. This settlement forms a training ground for the social work of the students.
>
> During 1945 eight students were trained and these are now placed in various districts of the Transkei. This year there are 15 trainees.

The aim of the course is to train women as home welfare officers, whose duties it will be to visit the homes and encourage better methods of living by improving the home, teaching better methods of agriculture, stressing the need for more varied crops so that the daily diet may be improved.

The course if of one year's duration and the curriculum is a very full one including :—

Home economics.
Agricultural economics.
Animal husbandry.
Vegetable gardening and poultry-keeping.
Public health matters regarding the health of the community.
Physiology and hygiene including first aid and home nursing.
Clinic work with special attention to child welfare.
District visiting.

Much practical work is carried on in all branches of the curriculum.

Attached to the centre is a clinic which is organised by the Health Department, and is run by a trained Native nurse of wide experience. The students gain valuable information by observing the treatment of various complaints and diseases at the clinic, which is one of the largest in the Territories—over 300 patients attending during one month of this year.

The training at Mbutu centres chiefly *in the home* and the closest assets of the home, which are the garden and the care of the cattle, poultry, etc., with the idea of promoting health through cleanliness, a better and more varied diet which is within the scope of most families by improved methods of agriculture, and useful occupation as recreation and it is hoped that as these officers gain the confidence of the people it will be possible to bring about a healthier and happier state of living.

Infectious and Formidable Epidemic Diseases.

(*a*) *Typhus.*—There has been a considerable decrease in the incidence of typhus largely on account of the fact that cases reported are immediately investigated by field officers and verified by laboratory examination. It has furthermore been ascertained that many cases which previous years were reported to be typhus, were in all probability typhoid.

(*b*) *Smallpox.*—With the decrease of typhus cases the smallpox incidence showed a definite upgrade both in cases reported and deaths. The large-scale vaccination campaign continues. This is necessary on account of the fact that many natives live in inaccessible areas and that many escape to these areas to avoid vaccination. The many deaths in unvaccinated persons in addition to prosecutions have resulted in natives now clamouring for protective inoculation.

(*c*) *Typhoid.*—A sharp epidemic of typhoid occurred in these areas during the year under review. This is due to the complete absence of any form of sanitation or reasonably unpolluted water supplies. The natives destroy or damage protected supplies and do not attempt to repair the damage done or report the matter to the local Native Commissioner. The introduction of some form of compulsory communal responsibility with adequate punishment for such negligence should be considered by the Native Affairs Department.

(*d*) *Diphtheria.*—Small outbreaks of diphtheria occurred in the Roza Location in the Qumbu district and at Rossouwdorp in the Dordrecht area."

VII.—ACKNOWLEDGEMENTS.

My thanks are due to all other Government Departments and their officials—especially, Magistrates, Native Commissioners and members of the S.A. Police—the South African Railways and Harbours Administration, the four Provincial Administrations, and the Medical Officers of Health and Councils of Urban Local Authorities. Thanks are also due to the South African Institute for Medical Research, the S.A. Medical and Dental Council, the S.A. Pharmacy Board, the S.A. Nursing Council, and the Medical Association of South Africa.

I wish also to thank Dr. U. O. Hofmeyr of the Union Government Scientific Mission in Washington, for keeping the Department constantly posted with information on medical advances in the United States of America and Canada, and to Col. P. G. Stock of the British Ministry of Health in London, who continues, as he has done for many years past, to act as a very effective liaison officer between the Department and current developments in the sphere of international health organisation and activity.

Finally, I should like to express my appreciation of the loyal and devoted manner in which both the administrative and the professional officers of the Department have carried out their duties during a year in which a marked increase of departmental activities has been accompanied by chronic shortage of staff. It is only through many hours of overtime put in by numerous officers that the work of the Department has been accomplished. I am particularly grateful to Dr. B. Maule Clark and Dr. A. C. Ferguson, Deputy Chief Health Officers, for collecting and collating the material for this Report.

I have the honour to be,
Sir,
Your obedient servant,

G. W. GALE,
Secretary for Health.

PRETORIA.